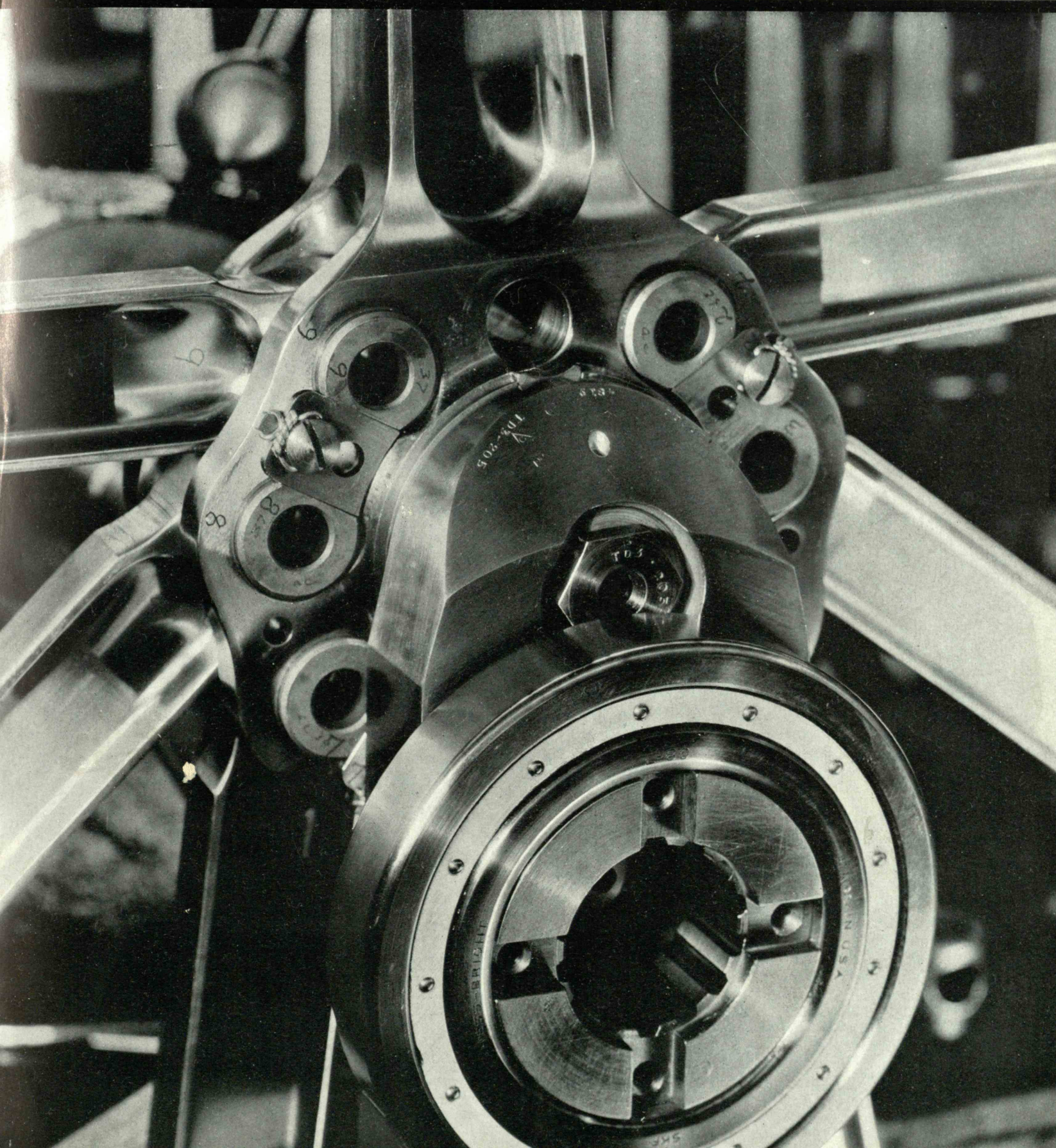


May 1937

TECHNOLOGY

REVIEW

Title Reg. in U. S. Pat. Office



technology review

Published by MIT

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*After a man's
heart...*



*...when smokers find out the good things
Chesterfields give them*

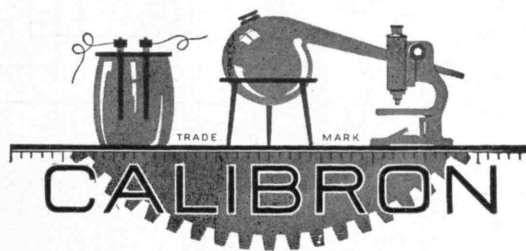
*Nothing else
will do*

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THE TABULAR VIEW

WITH the editorial correspondence that flows into The Review office in mounting volume come many photographs that point the morals and illustrate the comments indited by our readers. Since many of these pictures have as much saliency as the letters they accompany, The Review, as you may see on the next page, has decided to present in its correspondence columns as many such pictures as it considers interesting. Illustrated letters, therefore, will be welcome, but the pictures must be pertinent, reproducible, and of general interest. ¶ The widespread response that greeted the brain testers (see page 264) recently published in The Review vividly called to our attention the astonishing number of people who enjoy sharpening their wits on such enigmas. Already we have received many additional problems, and with the promise to publish them at the first opportunity, we herewith send out a call to our readers to send in still more. We will give adequate recognition to the sender of each problem published. Here's hoping for a collection of teasers contributed entirely by our readers. Try your pet problem (and it must be a real problem) on The Review family.

SOMEWHAT hesitatingly we add another article on trailers to the many that have appeared in the nation's press in recent months, but the contribution (page 278) of JOHN E. BURCHARD, '23, is such a refreshing and illuminating footnote to this volume of material that we would be remiss in not publishing it before some other magazine does. Mr. Burchard has published widely on the subject of housing, and he is a very active Editorial Associate of The Review. ¶ The Friends of the M.I.T. Library recently celebrated their formal inauguration with a banquet and rejoiced greatly to secure as their speaker A. EDWARD NEWTON, who refers to himself as "a not unsuccessful essayist." He dealt first with the materials of writing at the age of 15, and now he is the author of "The Amenities of Book-Collecting and Kindred Affections," "A Magnificent Farce and Other Diversions of a Book-Collector," "Dr. Johnson" (a play), "The Greatest Book in the World and Other Papers," "This Book-Collecting Game," "A Tourist in Spite of Himself," "End Papers," "Derby Day and Other Adventures." As might be guessed from the tenor of the foregoing titles Mr. Newton is a collector of first editions of important English books, and he is president of the Friends of the Library, University of Pennsylvania. As if enough had not already been mentioned to fill the time of a reasonably active man, we find that Mr. Newton entered the electrical business in 1890 and continued in it until 1931, having been president of the Walker Switchboard Company and chairman of the board of the I-T-E Circuit Breaker Company. ¶ MARGARET PAIGE HAZEN is Reference Assistant for the Technology Library, and, in addition to her labors for the Institute, is one of the regular book reviewers of the Boston *Evening Transcript*.



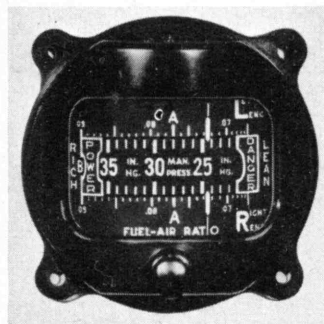
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The use of this instrument accordingly makes possible best engine performance under any given set of conditions . . . maximum economy in fuel consumption . . . increase in payload . . . greater safety in that it enables the pilot to fly the maximum length of time when fuel supply is low.

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MAIL RETURNS

PICTURES AND LETTERS FROM REVIEW READERS

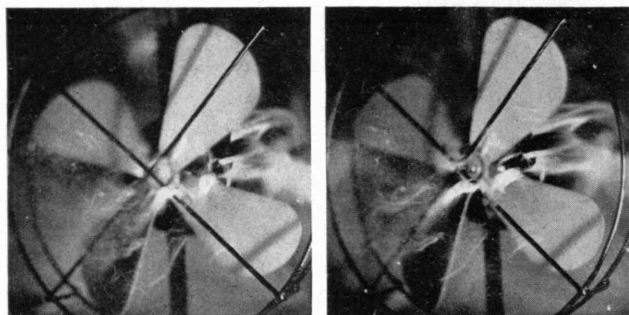


FIG. 1

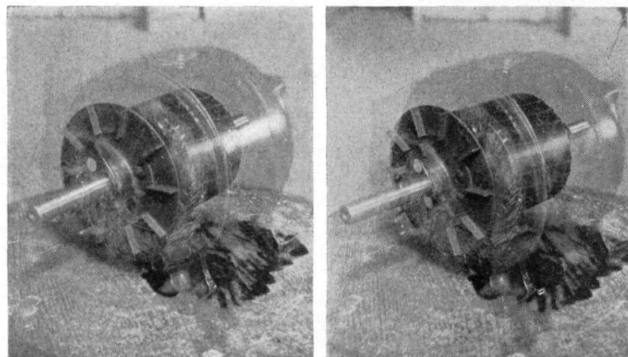


FIG. 2

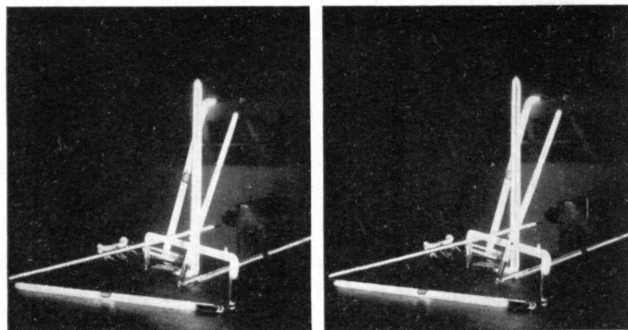


FIG. 3

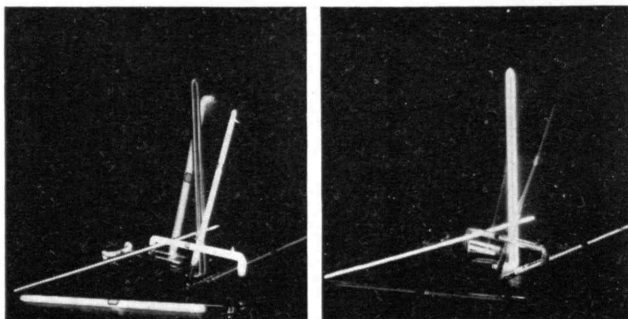


FIG. 4

Novel Stereos

THE adjacent pictures, described in the letter below, show still other novel uses of the stereoscopic camera when it is focused with ingenuity and imagination.

TO THE EDITOR:

"Seeing Solid" in the March Review was a delightful exposition of a fascinating subject whose possibilities in education and in research are unlimited. Let me suggest two or three additional applications which may add a little value to the inspiring illustrations of the text: A stereogram has been used to show the operation of a circuit breaker, opening under short-circuit conditions. The switchboard panel was illuminated throughout, so that the initial and final positions of the breaker arms are shown, as well as their locations (by silhouette) at the instant of extinction of the arc. By means of the principles explained in "Seeing Solid," the exact form and extent of the arc may be deduced. In the hope that you can use extra material, I inclose some stereograms which were taken with a special stereocamera loaned to me by Tru-Vue. . . .

Fig. 1 indicates what may be done in the analysis of airflow patterns. The picture is that of a wisp of cigarette smoke being chopped up by a fan rotating at 2,000 revolutions per minute. The light source was an open-arc stroboscope with brass electrodes, having an average of about 50 kilowatt input during each flash. As a wind-tunnel tool, this type of stereostroboscopic photography shows promise.

Fig. 2 illustrates a method of showing the insides of a machine, properly called a phantom view in three dimensions. The small motor was dissected and its parts (rotor, stator, frame) mounted and photographed in succession in correct relative positions. An unexpected and amusing incidental is the splotch of paint on the stool top on which the parts were mounted. This particular picture requires about 15 minutes of study before all of its possibilities are realized, even by a person familiar with the internal construction of a motor. It is necessary to refocus the eyes in roving from one part to another just as if the actual object were being studied.

Fig. 3 and Fig. 4 involve interesting physiological considerations. Fig. 3 is a group of gas tubes of various colors, photographed without filters. Fig. 4 is the same group taken through Wratten filters, No. 22 right-hand, No. 60 left-hand, the best pair available at the time. To get the most interesting reaction, the viewer should be equipped with these or similar filters (dyed gelatin squares suffice), red to the right eye, blue-green to the left, after looking at the regular black-and-white print to secure the normal reaction. With the filters, to many people, the result in Fig. 3 will be a subjective black-and-white; others will be unable to coördinate the prints and will even lose more or less of the three-dimensional impression. Next looking at Fig. 4, a few persons can combine the pictures into a three-dimensional unity with an approximation of natural color, but a greater number will fail to react to either the color-stimulus or the depth impression or both. . . .

Whether two-color stereograms can ever be applied usefully . . . remains an open question so far as I am concerned. . . . Whether you use the pictures or not, I remain a booster for The Review as a publication of interest and inspiration without an equal.

University of Cincinnati

L. R. CULVER, '22

(Concluded on page 264)

It's Easy To Make Money NOW...

Five years of pent-up replacement buying are now thrusting orders on companies whose operating expenses, in the past five years, have been intelligently pruned to the bone. Such orders are being "taken" by the suppliers with practically no selling expense. No wonder most companies in various industries are reporting big profits NOW!

BUT...WHAT OF THE FUTURE?

Will these same companies then lose their new-found prosperity? Will salesmen then seek buyers, as buyers are now seeking suppliers? Will sales expenses rise and profits decrease, as selling becomes more competitive? Past experience indicates they will.

How can your present profits be continued into the future?

By starting NOW to coordinate effective sales plans, which our experience has proven will "sell goods to increase profits"—when orders are hard to get.

RYAN,* LEACH & GOODE

Sales Engineers

NEW YORK

CHICAGO

*PAUL RYAN—XV₃—1922

Try this new

STARRETT **S-M** MOLYBDENUM

Hacksaw Blade

The combination of long-wearing Molybdenum and the special Starrett heat-treating process makes a blade that will stand up longer and cut fast even through tough metals. Order a trial supply from your distributor. Write for the revised Starrett Catalog No. 25L.

BUY THROUGH
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THE L. S. STARRETT CO.
World's Greatest Toolmakers
Manufacturers of Hacksaws Unexcelled
Steel Tapes, Standard for Accuracy
ATHOL, MASS., U. S. A.

Use Starrett Hacksaws



Samson Trade Mark

Samson Cordage Works

Boston, Mass.

Herbert G. Pratt, '85, Pres. and Treas.

Mills at Shirley, Mass., Anniston, Ala.,
and Icard, N. C.

Manufacturers of braided cords of all kinds, including sash cord, clothes line, trolley cord, signal cord, arc lamp cord, shade cord, Venetian blind cord, awning line, and cord for many other purposes, also cotton twines.

SAMSON SPOT CORD



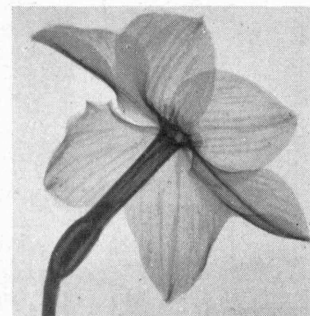
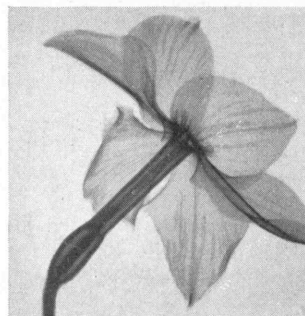
Trade Mark Reg. U. S. Pat. Off.

Our extra quality, distinguished at a glance by our trade mark, the colored spots. Especially well known as the most durable material for hanging windows, for which use it has been specified by architects for more than forty years.

MAIL RETURNS

(Concluded from page 262)

Narcissus



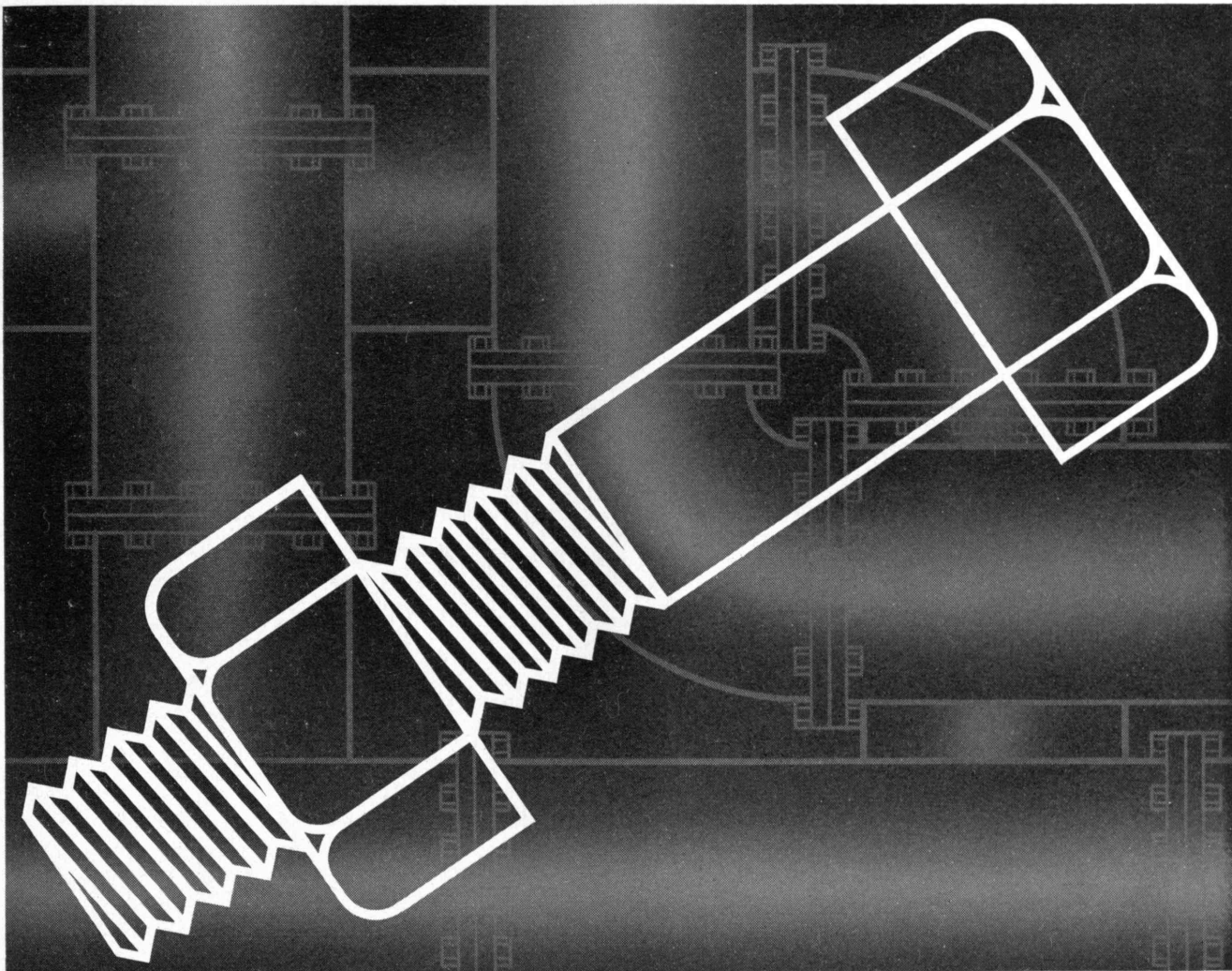
FROM RICHARD S. MORSE, '33, of Eastman Kodak Research Laboratories came the above stereoscopic Grenz-ray lens photograph of a narcissus. It was made by H. F. Sherwood with extremely soft x-rays over a wavelength of approximately one-and-a-half microns. Mr. Sherwood utilizes such stereoradiographs in the examination of cork, leather, cloths, artificial silks, and other materials, and in the study of small insects.

Runners-up

LAST month we promised to give you the names of the contestants who missed only one problem each in solving the Hudson brain testers (or, as one respondent calls them, brain wreckers) and of any whose responses were too late to catch the April issue. In the latter class, we have one perfect set from GEORGE VAN S. GREGORY, Cambridge, Mass. The Review, in the largeness of its heart, would like to keep on giving free subscriptions to successful solvers and regrets that Mr. Gregory's answers did not arrive at an earlier date.

Here are the Honorable Mentions: H. S. ANDERSON, West Orange, N. J.; W. W. GOODHUE, '11, Winchester, Mass.; G. L. HOWSE, '34, Chicago, Ill.; H. C. JOHNSON, '36, Boston; W. A. JONES, '18, Harrisburg, Pa.; KIRK MILES, '33, Gunterville Dam, Ala.; P. A. ROBERT, '32, Binghamton, N. Y.; I. E. ROSS, JR., '30, Dayton, Ohio; J. E. TURNER, '33, East Orange, N. J.; M. R. WILLIAMS, '27, Charleston, S. C. For seven of these men it was problem No. 8, concerning the minimum number of weights, which marred their otherwise perfect scores. One stumbled on problem No. 3, confusing the names of the president, professor, instructor, and janitor; one erred in his answer to the counterfeit-coin problem; one "had had" trouble with problem No. 2. The Review appreciates the interest shown by these men and commends their ability to grapple with the most recalcitrant problems.

Accompanying the answers to the problems were such comments as the following: "I sat down to figure out four or five of these things [the combinations of six nines to make 100], and it has now got to the point where I must stop or else apply for admission to some institution"; "I must confess that I was unable to complete the group while standing up. Moreover, the back of an old envelope would not have sufficed"; "I found out some things about George I that my Sunday School lessons omitted"; "I hope you publish more of these brain testers as they cause considerable interesting discussion at random gatherings." [EDITOR'S NOTE: We will.]



"Take care of the pennies . . ."

ONE bolt is small, and comparatively inexpensive — either to buy or to make. But — bolts "in the mass" can easily represent a very considerable outlay. The saving of even a small fraction of a cent in the production cost may come to a substantial sum in the aggregate.

For example: One concern has standardized on Chrome-Moly (SAE 4140) bolts because they are easier to machine — resulting in savings on both tool

expense and machining time. In addition, their improved physical properties assure better service performance.

Moly steels are cutting production costs throughout industry because they are more economical to fabricate — whether the process be heat-treating, forging, carburizing, or machining. . . . They also impart to finished products higher quality, resulting in better service.

Our free technical book, "Molybdenum," will prove useful to engineers and production heads interested in cost cutting and product improvement. Our monthly news-sheet, "The Moly Matrix," keeps readers informed on Moly developments. Consult our laboratory when ferrous problems get tough. Climax Molybdenum Company, 500 Fifth Avenue, New York City.

PRODUCERS OF FERRO-MOLYBDENUM, CALCIUM MOLYBDATE AND MOLYBDENUM TRIOXIDE

Climax Mo-lyb-den-um Company

A TOUGH GRIND

—AND THE



Belt maintenance cut from
\$280 a year to zero!

Driving Pulley 54" x 11"
Driven Pulley 7" x 11"
Idler 12" x 11"
Driven Pulley R.P.M.
— 3400

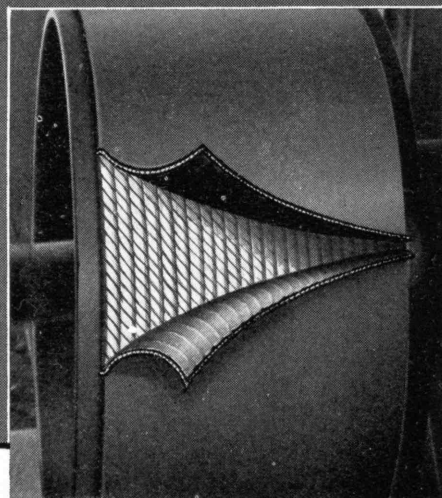


-Specified

GOODYEAR COMPASS "40"
ENDLESS CORD BELT

for

Jay Bee Hammermill Drive
George Q. Moon & Company
Binghamton, New York



HERE is an eye-opening story of belting economy for every industry using hammermills for grinding or pulverizing — for every heavy-duty drive operator.

Previous to 1934 the maximum life of any belt on the Jay Bee Hammermill Drive blueprinted here was six months and the average six to ten weeks. Belt maintenance averaged \$70 a quarter — \$280 per year.

Then in May 1934 a Goodyear Compass "40" Endless Cord belt was installed after careful analysis of this drive by the G.T.M. — Goodyear Technical Man. Today, 36 months later, it looks as good as the day it was installed — and in all this time it has never been taken up once!

Not One Penny's Upkeep

But the most astounding fact of

COMPASS cover cut away to show how endless, stretchless, heavy rope - cords carry the load. There are no plies to separate — no weak-link splice!

all is this. The Goodyear Compass cost originally only \$40 and to date not one cent has been spent upon it in maintenance. Compare that with \$280 a year spent in keeping up previous belts! The Compass has given *six times longer service than the best of its predecessors*—effecting a saving of \$840 in belt maintenance expense alone.

Goodyear Compass Belts give this superior low-cost service on all heavy-duty drives because their patented endless cord construction is the most nearly stretchless and most flexible known. Let the G.T.M. help you reduce costs with this mill-proved belt. To consult him, write Goodyear, Akron, Ohio, or Los Angeles, California — or the nearest Goodyear Mechanical Rubber Goods Distributor.

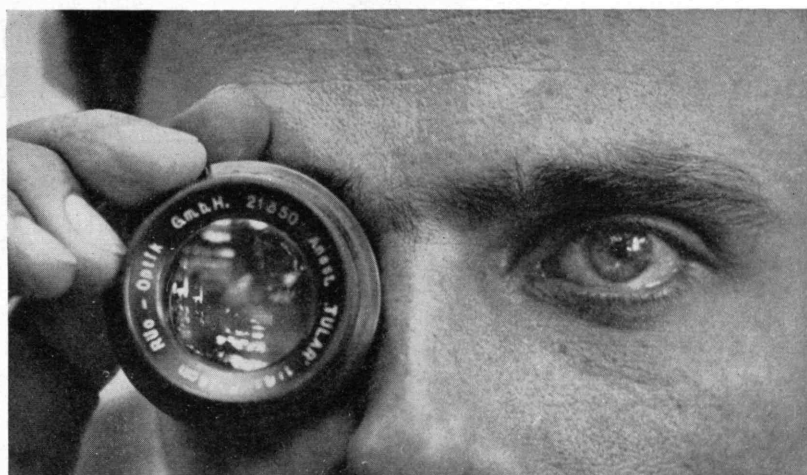
**BELTS
MOLDED GOODS
HOSE
PACKING**

Made by the makers of
Goodyear Tires

THE GREATEST NAME

IN RUBBER

GOOD YEAR



Leonhardt-Black Star

THE TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 39, NO. 7

CONTENTS

MAY, 1937

THE COVER

PROPELLER SHAFT BEARING, AIRPLANE ENGINE

Courtesy SKF Industries

FISHING MACHINES OF THE NORTH ATLANTIC	FRONTISPIECE	268
SEEING SPEECH AT ITS SOURCE		276
<i>Into the Human Throat with the High-speed Camera</i>		
THE TRAILER RECONSIDERED	By JOHN E. BURCHARD	278
<i>Is It Leading the Way to the Prefabricated House?</i>		
ANY COLOR SO IT'S READ	By A. EDWARD NEWTON	281
<i>Books Should Be Like Mrs. Gamp's Gin Bottle</i>		
THE WORLD OF SCIENCE	By MARGARET P. HAZEN	284
<i>Sixth in a Series of M.I.T. Library Reading Lists</i>		
FAREWELL TO ROGERS		285
<i>The New Building To Be Erected in Cambridge and the Sale of Tech on Boylston Street</i>		
THE TABULAR VIEW		261
<i>Notes on Contributors and Contributions</i>		
MAIL RETURNS		262
<i>Pictures and Letters from Review Readers</i>		
THE TREND OF AFFAIRS		269
<i>News of Science and Engineering</i>		
THE INSTITUTE GAZETTE		288
<i>Relating to the Massachusetts Institute of Technology</i>		

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Edwin Levick

SLENDER AND GRACEFUL

... but limited in capacity and once dependent on sail alone, the Gloucester schooner, Gertrude L. Thebaud, is characteristic of the most beautiful type of fishing vessel ever built. Shorn of bowsprit and bald-headed without their topmasts, these craft, fitted with engines, are now competing with. . . (Look right)



Roberts

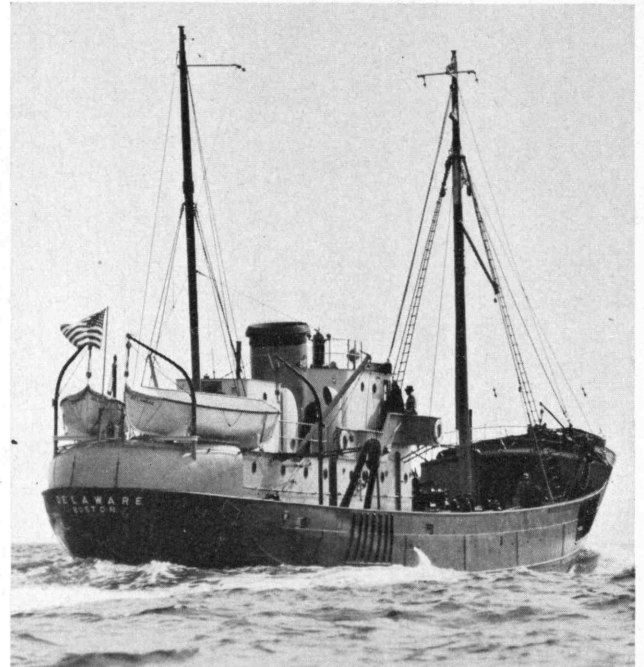
ARMS

... of fishermen, however powerful, failed to meet the demands of high-production commercial fishing. Special machinery was designed and now proves its worth at sea and ashore. Here a group of weir fishermen are hauling their nets by methods now being replaced by. . . (Look right)

FISHING MACHINES

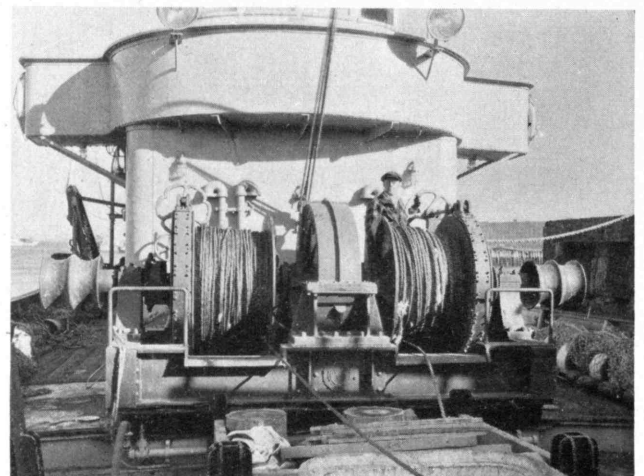
of the North Atlantic

Modern deep-sea fishing, as related on the next page, has gone in for the machine age, hook, line, and sinker—and trawler. In the surrounding pictures are some contrasts and some close-ups that emphasize the businesslike, engineerlike features of the North Atlantic trawler. What it lacks in beauty is offset by its efficiency, comfort, cleanliness



POWERED PROGRESS

... in this latest type of Diesel trawler. Compact and seaworthy, with nickel-clad holds that carry up to four hundred thousand pounds of fish caught by the best gear obtainable, these modern fishing machines keep in touch with market conditions by radio and drive through any storm to meet demands ashore



WINCHES

... which have the pull of a thousand arms. Firmly bedded amidships on a trawler, the sinews of this 120-horse power winch are used to trawl huge, wide-spreading nets on the bottom of the sea and bring up as much as fifteen thousand pounds of fish in one set of the gear

THE TECHNOLOGY REVIEW

Vol. 39, No. 7



May, 1937

The Trend of Affairs

Engineering for Fish

SPURRED by progress in food technology and land transportation, with a consequent steady increase in the nation's appetite for sea foods, the fishing industry is rapidly adopting advanced engineering methods to increase its efficiency afloat. Although it still bears signs of an empirical development, the industry, nevertheless, is now well established in the ranks of big producers. The value of its products in 1934, the latest year for which data are available, was approximately two hundred million dollars, which include the lake and river catch, and the vast production of Alaska. In that year, 123,264 fishermen, operating from 70,095 fishing craft, brought in a total catch of four billion pounds, a record up to that time.

Swift continental transportation by rail, highway, and air, quick freezing, cold storage, sanitary methods of production and shipment, and increasingly attractive merchandising of sea foods have had a profound effect on the consumption of fish. The best of the Atlantic and Pacific fish are now available in almost every inland city; a few years ago they were seldom obtainable or desired. But the sacred cod of New England, the haddock, and the halibut are now welcome on family boards from the seacoast to Salt Lake City. Even a roadside stand in the prairie states may now offer "broiled live" Maine lobsters, and Chesapeake Bay oysters on the half shell are not strangers in Nevada.

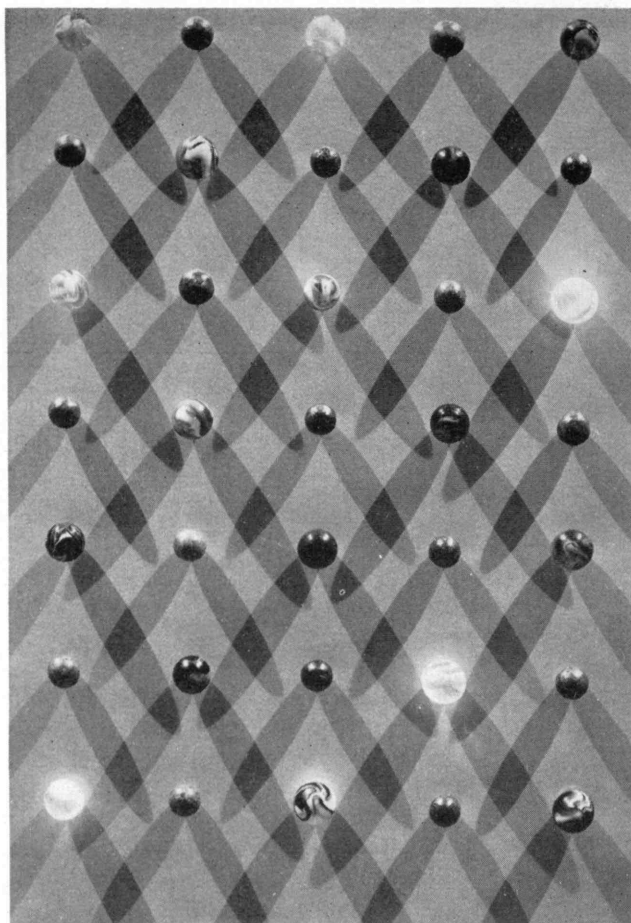
No small part of the steadily increasing demand for fish is due to improved methods of presenting sea foods to the customer. The filleting, or boning, of fish on a production scale began about 16 years ago in Boston, although the retail fish monger has long used this method to meet the tastes of individual customers. But it was filleting on a huge scale at the point of production

and the attractive packaging in vegetable parchment that had much to do with the growing appetite for fish. Furthermore, fish of delicious flavor but unattractive appearance began to be in demand in the form of fillets. Perhaps the most striking illustration of this is the current consumption of rosefish, a species found in great quantities on the Atlantic Coast and long considered a nuisance by fishermen. The catch of this fish landed at the leading fishing ports of New England in 1932 amounted to slightly more than 57,000 pounds with a value of about five hundred dollars. Three years later the total landings at the same ports had risen to seven-

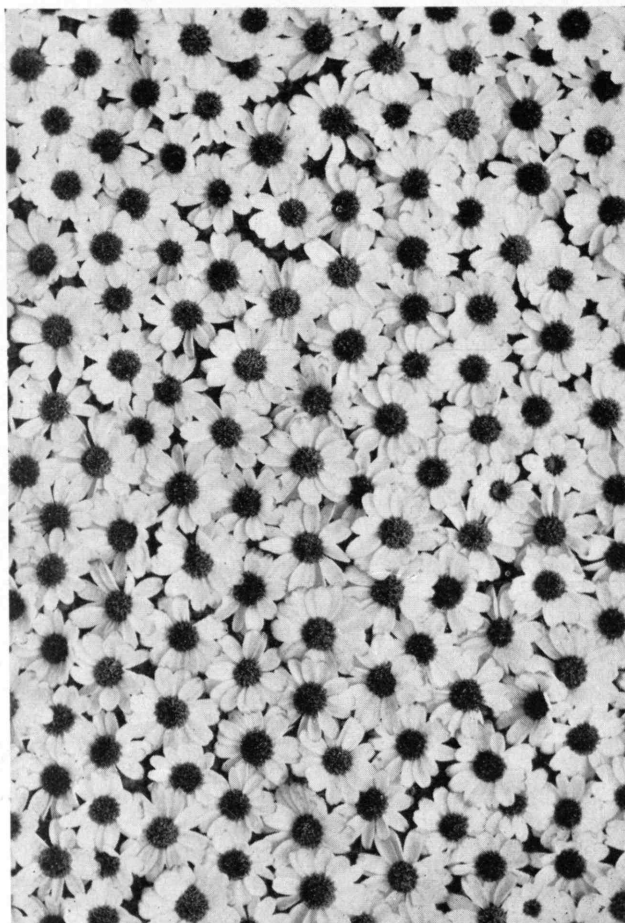


WORKING DECK

... of a new trawler during outfitting. Nets, twine for repairs, buckets, extra chain links, cork floats for the top and wooden rollers for the bottom of the net, and boards for the deck fish pens. Beyond the mast, the arching gallows frame through which the steel cable runs to tow the trawl



Underwood



McQuay-Norris

THERE'S NO CONNECTION

... between these pictures except their refreshing patterns. In *The Review* next month see the article "Wallpaper and Atoms" for an analysis of such repeated patterns as that of the winged marbles above

teen million pounds, and the demand is still increasing. The rosefish, filleted and neatly packaged, has found a ready market in the Middle West as well as in other sections of the country.

With methods of preservation and transportation well established, it behooved the fishermen to look to their ships and gear. The result has been a marked increase in the construction of power fishing vessels, particularly deep-sea trawlers, and a new interest in scientific and engineering aids to navigation and communication. The fishing fleet of today is propelled almost wholly by power. Most of the Gloucester schooners, beautiful craft worthy of meeting the worst the Atlantic can produce, now have Diesel engines as well as sails. Many of them have dispensed with bowsprits and not a few are bald-headed, having done away with their slender topmasts. Sails are now used chiefly for cruising on the fishing banks during the period of fishing, but on the run home to market the Diesels are relied upon to produce the speed necessary in this highly competitive industry. With engines running at full speed and all sails set, these vessels make remarkably fast trips.

Modern deep-sea fishing in the most advanced form is best demonstrated in the latest types of trawlers, steel, Diesel-powered vessels which are equipped with

the most recent appliances for navigation, efficient fishing, and the preservation of the catch until the cargo is landed. American trawler designers have in recent years broken away from the traditions of the famous blunt-nosed English Grimsby type. Many of the new trawlers have hulls in which the stem describes a long, soft curve and the bow sections have a wide outward flare. The cruiser stern, now familiar on many of the largest passenger liners, has also been adopted for some of the recent trawlers.

One of the most important advances in equipment is the use of nickel-alloy or nickel-clad steel linings for the holds. This rustproof and corrosion-resistant metal is applied in holds which are cork insulated by a method which greatly reduces the quantity of ice necessary to preserve the catch. Easily cleaned by flushing with fresh water, this lining is one of the main improvements in sanitation on fishing vessels. The modern trawlers are equipped for radio communication, and several have two-way radio-telephone equipment, which makes it possible to keep in close contact with port headquarters and to be apprised quickly of changes in market conditions. Because of the necessity for fast runs to fishing ports to meet rapid changes in market demands, speed is a factor of great importance in trawler design, and the range is from nine to 13 knots.

Locating the great fishing banks by a combination of navigation, fisherman's instinct, and heaving the lead is no longer practiced on modern fishing vessels, nearly all of which are now equipped with submarine signaling devices which indicate the depth of water by measuring the time required for a sound signal to echo from the bottom. Thus, by merely pressing a button in the pilot-house, the master of a vessel may instantly know the depth of water over which he is sailing. The fishing banks are so accurately charted that the experienced fisherman knows just where he is throughout his operations. This knowledge, coupled with an uncanny understanding of the habits and haunts of fish, spell the difference between successful and fruitless commercial fishing.

In addition to the propulsion engine, the modern trawlers have auxiliary Diesels for working the trawl winch and meeting other power demands in handling fish. The heavy equipment necessary is indicated by the fact that as much as fifteen thousand pounds of fish may be caught in a single trawling operation. The holds of the latest trawlers have a capacity of from three hundred thousand to four hundred thousand pounds of fish and ice.

The working fisherman who goes to sea in the new trawlers lives in comparative luxury. Much attention has been given to comfortable crew quarters, which now have individual heating units, special equipment for drying clothes, comfortable berths, shower baths, electric lights, and galleys equipped with stainless steel and the most modern refrigerating equipment.

Gestation and Genius

AMONG American avocations, few are more popular during the season of bad weather than that of listing the 10 best this and the 20 most important that. Readers of the April *Harpers*, consequently, at once welcomed Dr. Dumas Malone's article, "Who Are the American Immortals?" because it demonstrated that even the most scholarly are susceptible to the wiles of listing, and because, offering Dr. Malone's own selection of the 40 greatest Americans, it gave everyone else a chance to cavil at the omission of this or that great or near great. Second only to making his own lists, your devotee of cataloguing likes nothing better than complaining over someone else's choices. As editor in chief of the "Dictionary of American Biography," Dr. Malone is peculiarly qualified to submit a selection which may be considered as nearly definitive as any such selection can be.

The authoritativeness of his choice is especially opportune since it makes his list a useful yardstick for measuring another ingenious rating of human beings: the theory that the time of year in which a child is conceived has such influence on the human embryo as to determine whether the future adult will be a genius, a lunatic, or a dangerous criminal. Set forth lately by Dr. William F. Petersen of the department of pathology and bacteriology of the University of Illinois College of Medicine, the theory recalls the astrologer's patter, until one reckons with the facts that it is a theory based upon surveys covering 25,000 persons ranging from

individuals listed in Dr. Malone's "Dictionary" to others confined in penitentiaries and insane asylums, and that it considers meteorological conditions, not zodiacal houses. Dr. Petersen's statistics, as presented to the National Academy of Sciences, tend to show that individuals conceived during the first half of the year are likely to be more exceptional mentally and to have different physical traits from those conceived in the last half of the year.

Greater meteorological turbulence during the first half of the year, rendering the maternal organization more unstable, he held, gives greater opportunity for disturbances of oxidation for the developing embryo. Any interference with the free flow of oxygen may result in undue stimulation or injury to the embryo. The potential capacity of the cerebral tissues may therefore be influenced by environmental instability during gestation, with, consequently, a possible seasonal trend of potentially superior quality or of potential inadequacy. During the more stable months of summer and fall, however, these conditions do not operate, and individuals then conceived should tend toward stable normalcy or even toward inferior capacity, such as feeble-mindedness.

Of American Presidents, Dr. Petersen reported, none was conceived in August or September, and only five during the stable months of October, November, and



C. E. Patch, '02

WROUGHT IRON

... forms this delicate tracery in the gates to St. Michael's Churchyard, Charleston, S. C.

December. Statistics for individuals listed in "American Men of Science," based on normal United States conception expectance as 100%, show an actual rate of 135 for conceptions in April and only 65 for September.

Twenty-nine American Presidents were eligible for Dr. Malone's list; ten appear on it; of the ten, nine were conceived during the first seven months of the year. Of his entire list of 40 immortals, only five were conceived in August and September; eight more were conceived during the other three stable months; the rest, 70% of the total, during the unstable season. This figure correlates fairly well with Dr. Petersen's findings for individuals listed in "American Men of Science."

Tabulated, Dr. Malone's list as a measure of Dr. Petersen's theory is interesting. Here it is, with conceptions in the stable months italicized:

	<i>Date of Birth</i>	<i>Month of Conception</i>
George Washington	February 22, 1732	May
Abraham Lincoln	February 12, 1809	May
Thomas Jefferson	April 2, 1743	July
Benjamin Franklin	January 17, 1706	April
Woodrow Wilson	December 28, 1856	March
James Madison	March 16, 1751	June
John Marshall	September 24, 1755	<i>December</i>
Alexander Hamilton	January 11, 1757	April
Ulysses S. Grant	April 27, 1822	July
Robert E. Lee	January 19, 1807	April
Andrew Jackson	March 15, 1767	June
John C. Calhoun	March 18, 1782	June
John Adams	October 19, 1735	January
John Quincy Adams	July 11, 1767	<i>October</i>
Jefferson Davis	June 3, 1808	<i>August</i>
Theodore Roosevelt	October 27, 1858	January
Stephen A. Douglas	April 23, 1813	July
Daniel Webster	January 18, 1782	April
Henry Clay	April 12, 1777	July
Grover Cleveland	March 18, 1837	June
William Jennings Bryan	March 19, 1860	June
Winfield Scott	June 13, 1786	<i>September</i>
Joseph Story	September 18, 1779	<i>December</i>

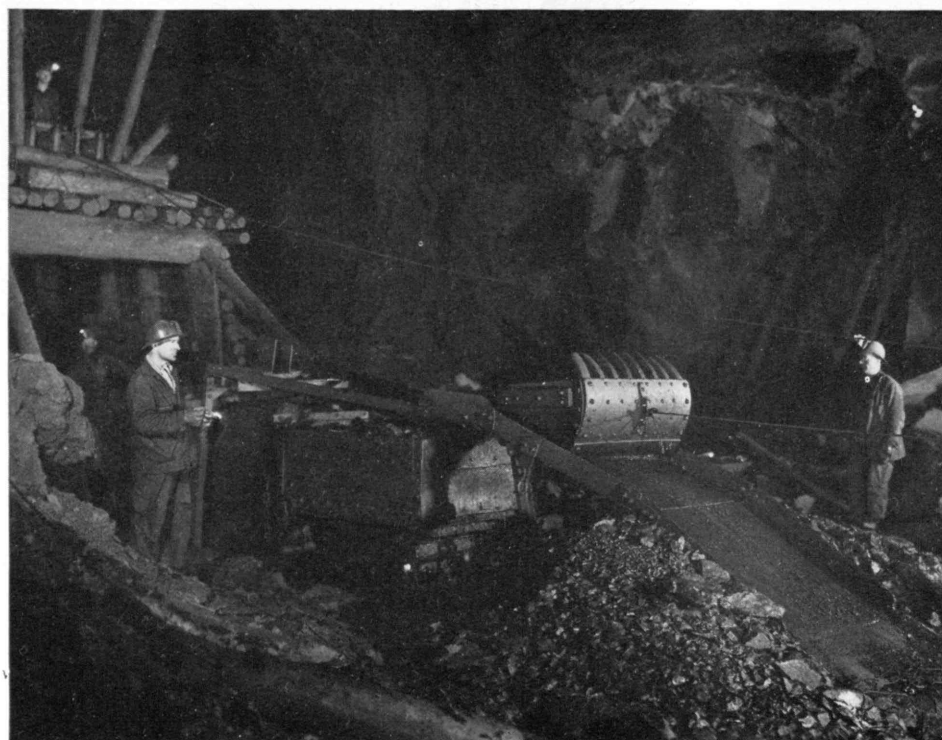
Ralph Waldo Emerson
Nathaniel Hawthorne
Samuel L. Clemens
Walt Whitman
Edgar Allan Poe
Henry David Thoreau
Henry James
James Fenimore Cooper
Horace Greeley
James A. McNeill Whistler
Augustus Saint-Gaudens
John La Farge
Jonathan Edwards
William James
Charles W. Eliot
Louis Agassiz
Andrew Carnegie

<i>Date of Birth</i>	<i>Month of Conception</i>
May 25, 1803	<i>August</i>
July 4, 1804	<i>September</i>
November 30, 1835	February
May 31, 1819	<i>August</i>
January 19, 1809	April
July 12, 1817	<i>October</i>
April 15, 1843	July
September 15, 1789	<i>December</i>
February 3, 1811	April
July 10, 1834	<i>October</i>
March 1, 1848	May
March 31, 1835	June
October 5, 1703	<i>December</i>
January 11, 1842	April
March 20, 1834	June
May 28, 1807	<i>August</i>
November 25, 1837	February

The correlation between Drs. Malone and Petersen's data is striking and amusing. We do not pretend to know whether it has a deeper significance; we merely opine that dictators who are anxious for a rising birth rate to swell the ranks of future armies may do well not merely to award prizes for large families, but to rationalize the situation, with special awards for the conception of a few potential generals during the unstable months, and others for the conception of plenty of ordinary cannon fodder in August.

Marine Guerrillas

CITIZENS of this Republic invest some fifty thousand dollars for each man in the crew of a submarine, twenty-five thousand dollars for every sailor on a battleship, fifteen thousand dollars for each member of a bomber crew, regardless of the months in which they were born. The men themselves are by far the most expensive factors in the war machine. Each man must be recruited, trained, equipped, maintained, insured;



Young and Phelps

AS STEEL PRODUCTION MOUNTS

... improved techniques in iron-ore mining keep pace on the great Mesabi Range in northern Minnesota. Left. Side loading ore into cars in an underground mine. Right. In open-pit mining, mammoth shovels quickly fill freight cars

if he is wounded, he must be hospitalized, treated, pensioned; if he is killed, the nation suffers an economic and a graver, if intangible, social loss. No government exists today so rich in gold or man power that it can disregard such considerations in planning its defenses.

Hard-pressed democracies and harder-pressed dictatorships are therefore attentive when a fast, long-range craft appears upon the scene which requires an investment of a mere \$125,000 for its crew of ten or so, yet is potentially capable of disabling a fifty million dollar battleship. To say "appears upon the scene" may give a wrong impression. The theory that the strongest and cheapest naval defense lay in the building of hordes of small units depending for success on speed and numbers was the thesis of a school of thought that developed in France during the 1880's simultaneously with the rise of the torpedo. Whether it were insufficient technical development or faulty logic which prevented such craft from revolutionizing naval warfare, the fact remains that enough high-placed French naval officers believed in the theory to cost France her position of near equality with England in sea power.

Coastal torpedo boats were successfully used by the British in raiding operations on the Belgian Coast, but although almost as fast as present types, they had the fatal faults of short range, frailty, lack of seaworthiness, and the ability to tire out their crews in a few hours. The fast-rising flood of technical skill has covered enough ground in the fields of hydrodynamics, metallurgy, and internal-combustion engine design to resurrect the type, however, by giving it an almost unsinkable planing hull which permits high speeds in rough water, and by furnishing gasoline engines of airplane lightness which make possible those speeds without crowding out heavy armaments and supplies. Mr. H. Scott Paine, prominently identified with British motor torpedo boats, claims them capable of long-distance, deep-sea work as independent units. If this be so, the major weaknesses which war use brought out in these craft have been overcome, and the English authority who declares these motor torpedo boats to be more effective than 1,500-ton destroyers may soon be justified by the wars which European and Asiatic populations seem to be awaiting with the fatalism of despair.

Excellent examples of the type are the latest British craft whose 60-foot, high-walled hulls manage to exceed 40 knots while carrying two 18-inch torpedo tubes (torpedoes of this diameter weigh close to 2,000 pounds apiece), machine guns, depth bombs,

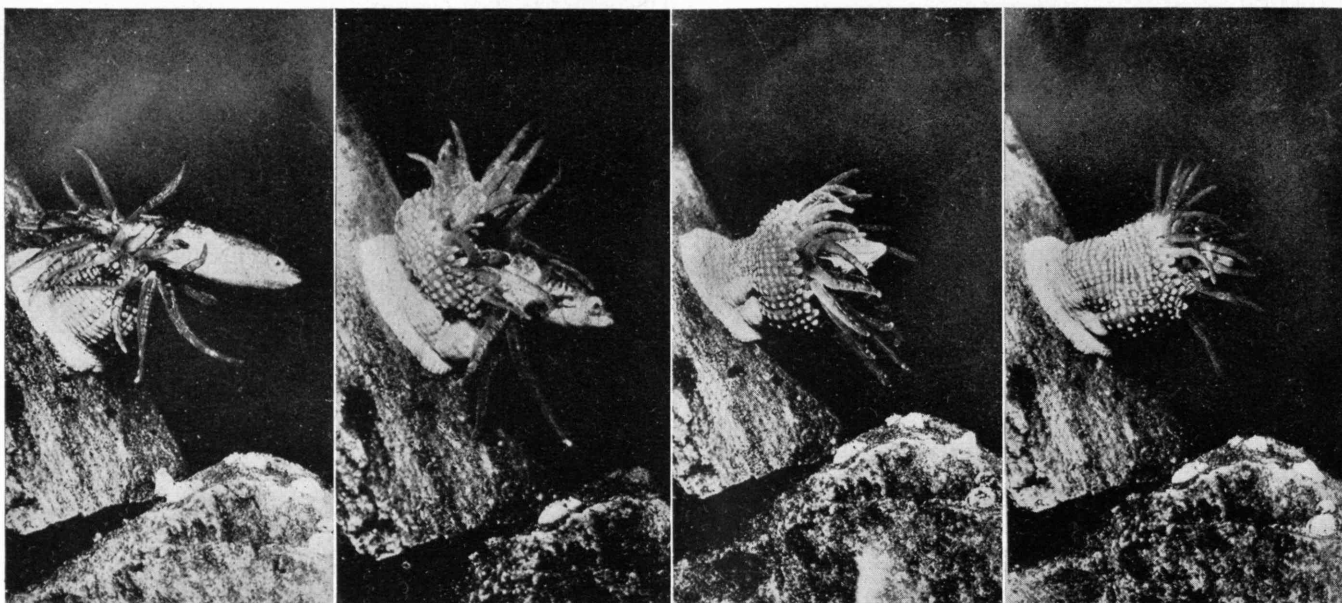
three 500-horsepower engines, and two weeks' supplies for eight men and two officers. When cruising at 25 knots, these boats are reported to have a radius of 1,000 miles. Dr. Oscar Parkes, former editor of Jane's "Fighting Ships," stated that the British motor torpedo boats are "magnificent" in bad weather, also praising their finger-tip control and great directional stability—qualities which add substantially to their crews' endurance. Whether they add enough is one of the primary unknowns in estimating the fighting efficiency of these craft. Hector Bywater rhapsodizes in the austere, authoritative *Engineer* about their "remarkable sea-keeping qualities," and believes that "in view of the performance of the first group to be delivered, there is little doubt that the motor torpedo boat will be permanently adopted by the [British] navy."

The Italians, it appears, have already done so, for during the recent Ethiopian crisis, the presence of 300 of their high-speed, torpedo-carrying sea sleds was reported by the American press as one reason for English hesitation in the Mediterranean. Heartily wishing it were so, the Italians ruefully claim having but 21 such boats, only a dozen of which are good for 40 knots. As in the case of Germany and Russia, the actual size of *Il Duce's* "mosquito" fleet is unknown. And what of the United States?

Tactically, these boats possess many characteristics of the airplane, but are not so easily hampered by bad weather and can board or communicate with ships. What they could do, even en masse, to large fighting ships is problematical. With their small size, high speed, and great maneuverability, they are without question difficult targets, and for a capital ship to attack them with its secondary batteries would be somewhat like using a baseball bat to swat flies. Yet a barrage of, say, five-inch shells would be a dangerous barrier for unprotected motorboats, while large-caliber machine guns



Young and Phelps



By means of its long tentacles, often furnished with stinging cells, the anemone enfolds its prey, seizing it as it darts past

Reaching out its long feelers, the anemone envelops the fish, drawing it into itself. Each tentacle is a sucker

As it draws the fish in, the anemone extends itself—reaching its body forward and surrounding its captive

Almost lost to sight. The anemone has pulled itself on like a stocking round the fish

might prove even more effective. Another defense, one not without its disadvantages to the defenders, would be a screen of destroyers. Nevertheless, it was a coastal torpedo boat which fired the only torpedo of the War to sink a full-fledged dreadnaught.

Torpedoes (from submarines) sank over 15 battleships during the World War, but these were of the so-called second class, *i.e.*, inadequately armored pre-dreadnaught types. Underwater protection today is much more thorough—prime reason for almost half the weight of the latest German capital ships being in armor—so that a hit anywhere along the water line is calculated to give not more than a five-degree list. Even so, a disabled battleship is merely 35,000 tons of liability to its fleet. And who will guarantee only one hit?

More than a dozen motor torpedo boats can be built for the price of one submarine. This relatively gorgeous economic prospect is somewhat obscured, however, by the realization that personnel must be intelligent, courageous, and highly trained, that maintenance of such a fleet in fighting trim would require heavy expenditures and intricate organization, and that crews could remain at sea for only short periods because of the arduous, nerve-racking duty involved.

Yet more than the airplane, perhaps more than the submarine, it may diminish the power of capital ships to attack shore establishments. The last War showed that the submarine alone had destroyed the old-time ability of a battle fleet to maintain a close blockade; perhaps submarines, reinforced by small torpedo boats, may, under favorable geographical conditions, keep the sea lanes of a weak power sufficiently open for it to escape strangulation. All this is speculation, but the fact remains that General Douglas MacArthur, now a military adviser to the Philippine government, plans for the acquisition by the islands of from 50 to 100 torpedo boats during the next decade. And if the Philippines

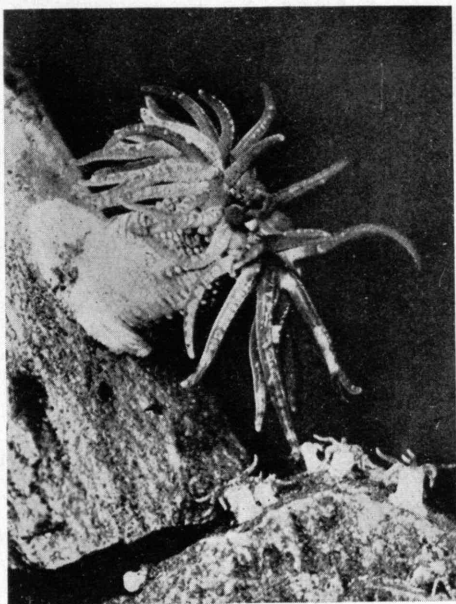
can be so defended, why could not the Dutch East Indies, with their more than three thousand miles of tortured coast line, carry on a guerrilla naval war with the same weapon?

A guerrilla war it must be, for these boats are of minor value to a power which intends to attack or defend by attack. Their forte is to raid, to threaten, to harry commerce—above all, to delay the advance of a stronger power. Or perhaps, since history is so often composed of variations upon an ancient theme, this new form of a fairly old type will play a more dominant role than is assigned to it, and, like many novel weapons in the past, cause a radical change in tactics.

New Ways and Materials for Building

IN the present stage of man's scientific knowledge, and despite dramatic developments in glass, aluminum, plastics, there remain to us but four fundamental structural building materials: steel, wood, masonry (either ceramic or stone), and concrete. Of these, the masonry art may well be the oldest, for the earliest civilizations of which we have true records were not laid in regions where timber abounded, though clay and sun did. By now man's achievement in ceramic technology is well advanced, as is his knowledge of stones. Where masonry still lies unexplored is in the joint without which masonry cannot exist. In this matter, masonry is perhaps the most backward of building materials.

It is interesting, therefore, to report the arrival from abroad of a new method of masonry called by its sponsors "Novadom." Although these sponsors are already engaged in seeking materials here for their purposes, and although in this search they are writing rather comprehensive letters, it is impossible at this time to present anything more than a cursory preview. This much is clear: that buildings can be, have been, and are



Leonhardt from Black Star

Ready for the next meal. On the rocks below are young thrown off from itself by the sea anemone

A SEA ANEMONE DINES-- AND HOW

being built by the method; Novadom buildings are becoming fairly common in Europe, particularly in Vienna, Zurich, Paris, and London. The Austrian government will construct of Novadom its building in the current Paris exposition. In the Dominion of Canada, a country house is soon to be started in Montreal with an 80% subsidy from the government. In New York State a large grain company has just commissioned the construction, on the Novadom principle, of a warehouse at Geneva, and this will be the first application of the method in the United States.

This much, too, is clear: that Novadom attacks the problem of masonry at the joint. According to the method, bricks of any size or shape, plain or hollow, are laid dry without any space between them, the horizontal courses being separated only by three-eighths inch webs or slabs of wood fibers associated with a setting binder, usually of the magnesium-oxychloride type. Such materials in greater thicknesses are already in use here, principally as acoustical absorbents. It is stated that walls built by the new method have greater compressive, bending, and shock resistance than masonry walls with cement mortar, can be built in about half the usual time, and are completely dry from the beginning. In Europe the method is said to save 30 to 35% of the cost. The method has been promoted for less than a year, but its active growth indicates at least a live interest. To this extent it seems sound. The strength of masonry walls is determined by the strength of the mortar which is almost always less than that of the bricks or stones. Theoretically, a mortarless wall will be stronger than one with mortar. In fact, the ancient masons built many such walls. The difficulty today in building a mortarless wall is that bricks or stones are not dressed with sufficient accurateness to prevent unevenness. It is evidently the purpose of this method to provide a resilient web which will compress sufficiently to account for deviations in brick or stone sizes and which will result

therefore in a modern equivalent of the mortarless masonry. It will remain for time to tell whether the sponsors' claims of a revolution in building methods are or are not justified. For the moment, the fact may be recorded as indicating a new interest in this old constructional material.

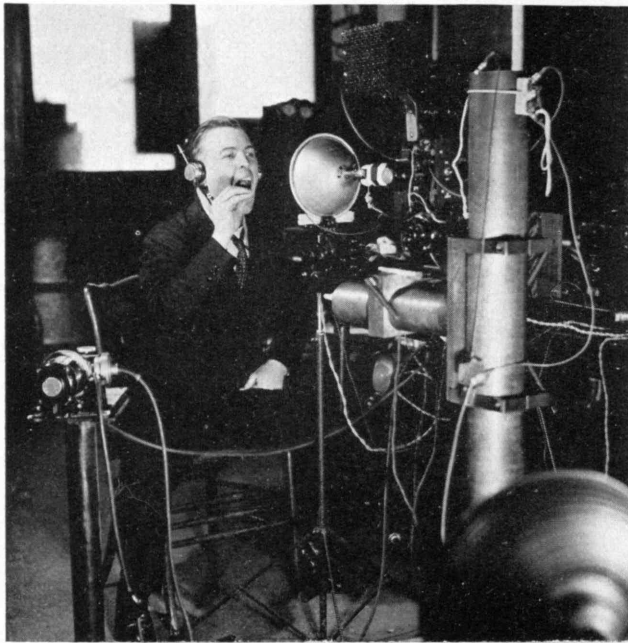
Steel and wood technology have often been noticed in The Review. They are the most advanced of all the technologies dealing with building materials, with that of steel probably in the lead.

Of the four materials, however, concrete is in many respects the most alluring. It has one great advantage possessed by none of the others: plasticity during the process of construction. Though subjected to a good deal of research of one or another type, this research, until recently in this country at least, has been quite sporadic and quite empirical, as The Review pointed out last month. Recent developments in the study of the mechanism of the setting of cement and in vacuum concrete, as previously noticed in these columns, point the way to greater things. Along the same line is the new arsenic concrete developed in Sweden, which produces a flash-setting concrete with the strength characteristics of normal ones. The Swedes have found that adding arsenic to cement produces a set as soon as the water of hydration is combined, so soon, in fact, that normal methods of placement cannot be employed and the dry mixture has to be ejected from a gun to be combined with water at the nozzle, immediately prior to deposition. Much study needs to be given to this new proposal before it can be regarded as symptomatic, but it is a harbinger of promise.

Finally, there has recently been offered in this country a new method of combining concrete and steel beams, known as the Alpha system. According to this plan, a springlike coil of steel is welded to the top flange of an I beam or other steel beam. A concrete slab is poured to surround the flange and produce a composite beam in which the steel beam affords the tensile and some compressive reinforcement, while the concrete forms the main compressive element. The shear bond is made through the steel corkscrew and its weld. Where shear is great, the pitch of the coil may be reduced to afford the necessary bonding. It is stated that a seven-inch I beam with coil and a two-and-three-quarter inch top slab of concrete is equal in deflection resistance to a 20-inch standard I beam and in bending strength to a 12-inch I. On a deflection basis, the saving in weight of steel is 72%; on a bending basis, 60%.

This construction has been used widely abroad, notably in Switzerland whence it comes, and particularly in the General Motors Building in Bienne as well as in the skyscraper, Feltrinelli, in Milan and many bridges in Switzerland and Holland. It commends itself particularly for bridge work and notably perhaps for increasing the strength of steel structures built for loads of another day which are now less than we need to impose.

The Review records with pleasure these recent developments in concrete, but notes with some despair that like almost every other development in the concrete art, they emanate from Europe. American research more than holds its own with that of Europe in many fields; in the applied field of building and building

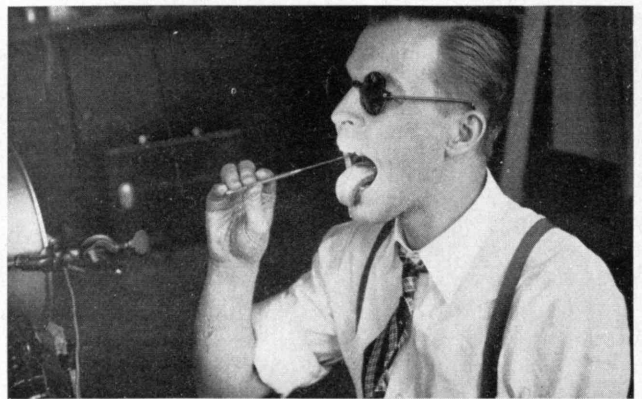


Here is how Dr. Moore posed for vocal-fold motion pictures such as those shown below

HAVE you ever seen a voice making a noise? Lip reading, yes, but the lips and tongue control the shape of the sound, transpose it into the code we have adopted for social usage. The sound itself originates behind the tongue in the almost inaccessible region above the Adam's apple. More specifically, pitch and volume are controlled by the opening between, and the movements of the vocal folds.

For some years scientists have been trying to photograph these folds in an attempt to learn the direction or directions of their movement, the relationship between the two folds, the effect of changing pitch and altering vocal intensity. A step forward, which should be of value to doctors as well as scientists, has been made recently, however, through the use of the laryngoscope perfected by Dr. Paul Moore of Northwestern University. Dr. Moore's laryngoscope directs the light from a stroboscope down to the vocal folds and back again, over the same path, to the eye of the observer. Difficulty was experienced in directing enough light onto the larynx to make photography possible.

Recently Dr. Moore brought his apparatus from Chicago to M. I. T. and used the intense stroboscope that has been developed in the Electrical Engineering Department. Motion pictures were taken of Dr. Moore, shown above holding in his mouth a guttural mirror and facing the stroboscopic camera. The mirror directs the rays and reflects the light beams to the area to be photographed. The camera is focused through a hole in the back of the stroboscopic lamp so that



The stroboscopic light sunburned his throat, but Dr. Moore got his pictures

Seeing Speech at Its Source

Into the Human Throat with the High-speed Camera

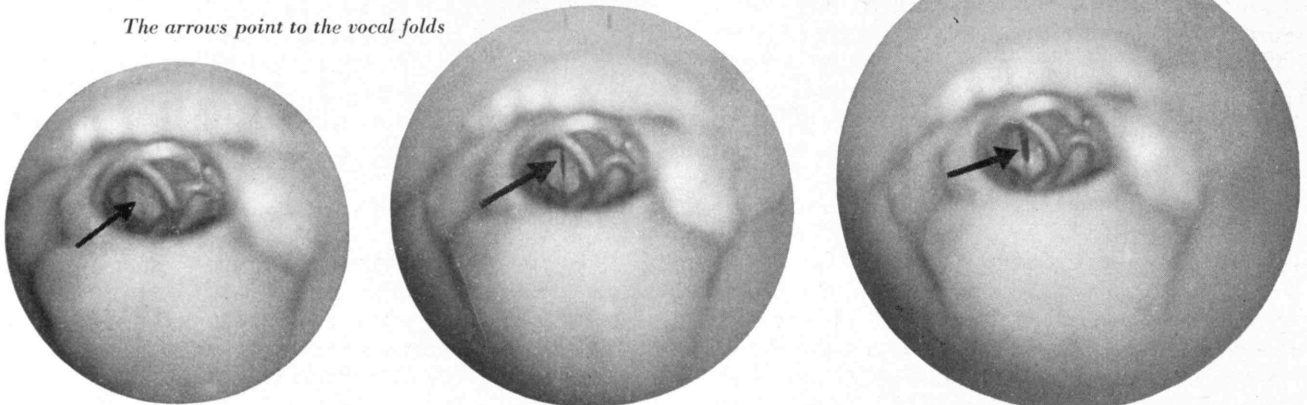
the light reflected from the folds can use the same optical path as the incoming light. Earphones give the tone that is to be voiced by the subject.

In previous studies the light was stimulated regularly by an oscillator and the subject attempted to synchronize the movements of his vocal lips, or the voice of the subject was used to stimulate the light. With the high-speed camera neither of these artificial procedures is necessary. The light flashes regularly at such speed that the subject is permitted to make noises normally, without regard to the camera. Stroboscopic pictures, however, were also taken.

In the photographs below, the arrow points to the vocal folds, which may be seen in three different stages of vibration. On the left they are touching each other, in the central picture a partial opening shows, and in the photograph on the right the folds are widely separated. Amplitude of movement varies with the pitch and intensity, *i.e.*, greater intensity parallels larger excursions, other factors unchanged, while lessened amplitude accompanies rise in pitch. The hazy circle around the enlarged center can be recognized as the subject's teeth and tongue slightly out of focus.

Dr. Moore learned with his laryngoscope that the vibration pattern of the folds is very complex; the extent of sideward excursion composing the waves varies inversely with the pitch; the folds appear to move synchronously and in phase at all times. No conclusion could be drawn, however, as to the relative amounts of upward and lateral components, and it is expected that the new high-speed photographs will complement these studies.

The arrows point to the vocal folds



materials we still seem to look across the water. It is high time we stopped explaining this on the ground that in Europe materials are more valuable than men and came to realize that sooner or later that will also be the case here. The time to start is now, and not after the seven candles have guttered out.

Blow Hot, Blow Cold—to Very Cold Indeed

WE blow a match to put it out, and we blow a fire to make it burn more brightly. We blow on a spoonful of hot soup or of too hot coffee in order to make it cooler, and we sometimes blow upon our fingers in cold weather to make them warmer again. We blow hot and we blow cold in more practical ways than are suggested by poetic references to our fluctuating enthusiasms. The apparently contradictory effects are easily explained. Wood, like every other combustible material, takes fire only when it is heated above its kindling temperature, and it continues to burn only so long as its temperature is maintained above this point. When we blow out a match, we cool it below its temperature of inflammation. When we blow upon a larger fire, we merely supply more oxygen to it and increase the rate of its combustion. We cool our coffee by hastening evaporation from the surface of the hot liquid. We can warm our fingers in cold weather by breathing our warm breath upon them. But we can warm them still more, if we are wearing woolen gloves, by breathing into the gloves themselves. In that case, we actually get more warmth than corresponds to the temperature of the breath.

GRANITE

... is quarried like this in Massachusetts and New Hampshire. Blocks like these would have given pause even to the pyramid builders

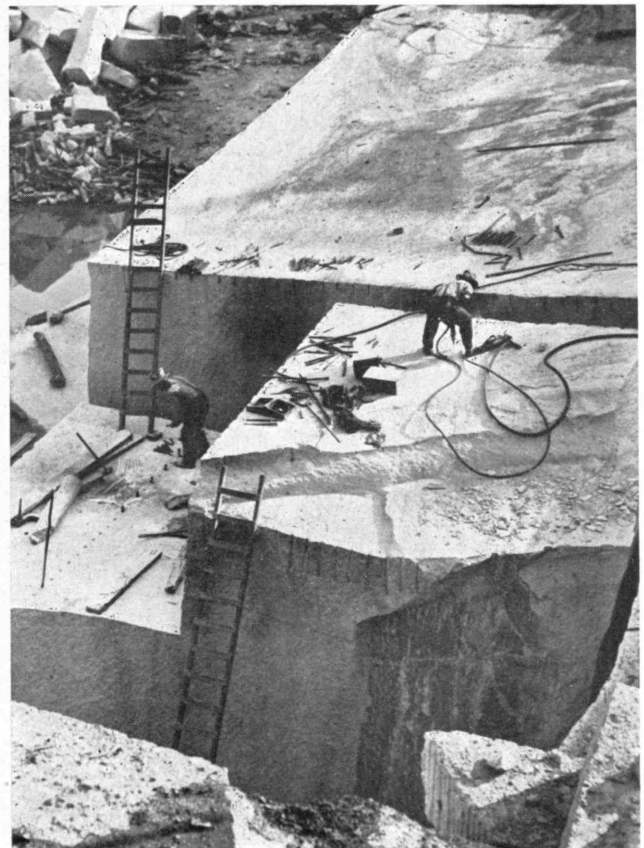


H. E. Fletcher Company

A patient in the hospital, recovering nicely, his temperature and pulse and respiration practically normal again, perks up, jokes with the nurses, plays little tricks on the doctor. Perhaps he smokes in bed, and the nurse takes care not to put the thermometer into his mouth immediately afterwards; that would make it register too high. The patient thinks that it would be a fine joke if he could contrive to be smoking, and to throw away his cigarette unobserved, just before the nurse enters the room with the sterilized thermometer. The psychology of convalescence is like that. How much better the joke would be if he could manage, without smoking, to make the thermometer register three or four or five degrees higher than normal? He would then seem to have a terrific fever. Surely the doctor would have to make a special trip to the hospital to save his life.

It is easily done. If the corner of a handkerchief, or other piece of dry cloth, be wrapped two or three times around the bulb of the clinical thermometer, and if the patient then exhale his breath into the cloth, the temperature will rise several degrees higher than it would if the bulb were held in the mouth as usual. Under these conditions, the bulb of the thermometer actually becomes hotter than the breath of the patient. The reason is that the moisture of the breath is adsorbed by the fibers of the cloth and the adsorption is accompanied by the production of heat. If a cloth, after its fibers have adsorbed moisture, is put under an air pump and the moisture pumped away, the desorption of the moisture from the fibers takes up heat and the cloth actually becomes colder than it was.

(Concluded on page 304)



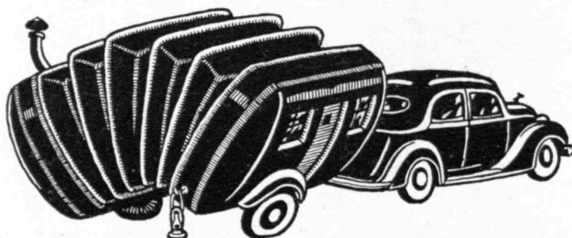


. . . there are some beauties

THE trailer is an engaging fantasy. The necessary truthful part of the fantasy lies in its undoubted merits for convenient, comfortable, and economical short-time living. The necessary imaginative ingredient lies in the conception of America gone nomadic — of the mobile house. Such a flood of trailer publicity has rolled over the rotary presses in the last few months that a harassed observer may be pardoned if he has difficulty in keeping afloat; he may well be swept away by the flow of words and drown in false conclusions. Only sobriety may serve as a life preserver.

It is usually hard to keep sober when housing is the subject. Almost all of us can remember the champagne cocktails served by the news-conscious young proponents of prefabrication just a few years ago. When the proponents ran out of stimulants, the businessman prophets took their place. There come times in a prophet's life when he must at all cost prophesy grandly and let the fulfillments fall where they may. On prefabrication the prophets let loose their fullest thunders. Prefabrication was to bring us out of the depression without benefit of legislation. Prosperity was just around the corner window. Dymaxion, with words of flame, came whiffing through the housing woods and burbled as it came.

After the jag, the headache; after the headache, recovery. Prefabrication is staging its recovery, is a sober-sided though poor citizen of the industrial commonwealth, and being today reasonably industrious and more than reasonably serious and intelligent may some day be a wealthier one. It has ceased, however, to entertain Dantesque ideas. The new leader of the proposed housing revolution is the trailer. Already the product of a live, vigorous, and growing industry, the trailer has been unable to escape the aid of the prophets. What do the prophets say? A well-known airplane designer predicts that half the houses in the country will be mobile in 30 years; an even more prominent statistician reduces the time for this Utopian achievement to two decades. Yes, the trailer *is* an engaging fantasy. An important phenomenon, it is worth considering calmly.



. . . the very interesting new accordion trailer

The Trailer

Is It Leading the Way to

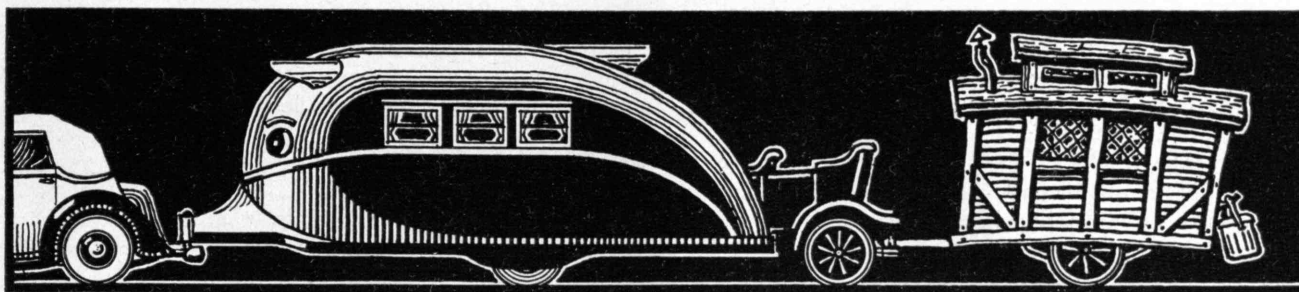
BY JOHN E.

Illustrated by

Statistical evidence about the trailer, so far as I can discover, is essentially either nonexistent or nonavailable. What does exist is inconclusive and contradictory. We know that in 1936 there were upwards of four hundred manufacturers occupying the field. We know that the largest employed a thousand men last year and produced upwards of ten thousand trailers at a total cost of over four million dollars. We know that plant capacities of many of the leaders have been expanded for this year's business. We know that the business has already been profitable. Are there a million people living in trailers in the United States today? Two million? Five hundred thousand? Who knows? Who cares? Certainly there are a lot — enough so that if one should take the curve of growth since trailer making became an industry and project it at its present slope into an ordinative empyrean, even the prophecies of the aircraft designer and the statistician will prove to have been modest. But mathematics teaches those of us who bother with it that curves, even curves which are continuous functions of something, don't always aspire to continue any current path. Nonetheless, the growth of the trailer business to its present proportions and the scant doubt that the number of trailers will increase considerably present us with facts that have rather profound implications.

There have been trailers of sorts for a great many years. Probably when the first trailer man went camping in the woods and found that his back wouldn't carry all the duffel he needed, and that a road of some kind would let his motorcar reach a proper camping site, he conceived the idea of sticking a box on two wheels and dragging it along behind. Some of his more resourceful fellow trailer men soon developed a tent that could be erected on this first trailer or attached to the car by no end of ingenious contrivances. Very soon, and surely many years ago, individuals developed their own crude houses on wheels. That is all there is to the history of the trailer; the rest is civilization. Civilization and depression.

The depression made the trailer industry possible. There were numbers of families in the North who found their incomes reduced and their jobs gone; who, even if



. . . the evolution of the trailer

Reconsidered

the Prefabricated House?

BURCHARD

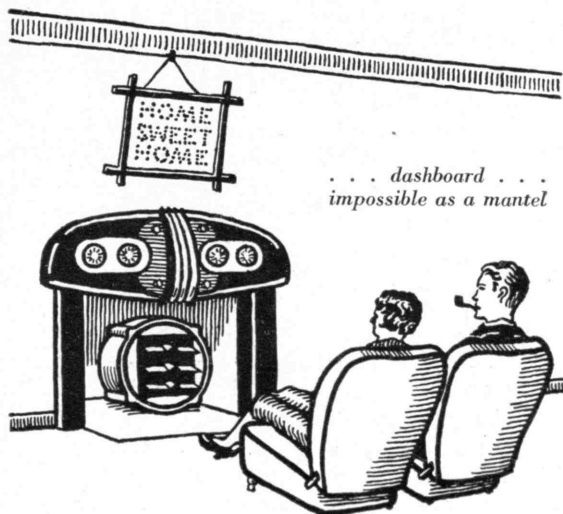
G. Thayer Richards

they owned houses, found it cheaper to shut them up, get into a trailer, and move South where there were no taxes to endure, no rent to pay, no fuel to buy. The trailer appealed also to the foot-loose, to elderly parents whose children would rather live their own lives, to those who were disposed to cut costs by evading taxes (and aren't we all), and to that considerable percentage of our population who enjoy the sensation of being squatters. In the last analysis the lure of the trailer as something approaching a permanent abode is that of economy and of satisfaction of the wanderlust. On the whole, the latter factor must be regarded as distinctly secondary.

This is perhaps a good point at which to make two or three things clear. In the first place, when I speak of trailers I am considering only the standard middle-class article. The more elaborate trailers — and there are some beauties, with Pullman berths, electric refrigeration, stoves, showers, chemical toilets, generators, butler's quarters — are of no more consequence so far as the general sociological significance of the trailer is concerned than was the Palace of Knossos to the housing problems of ancient Crete. Of course, even the modest trailers included in this purview have beds, refrigerator, and stove, and their equipment is increasing all the time. In the second place, I yield to no one in admiration for the present standard product. I should like to own one, but that doesn't mean I want to live in one in Upper Westchester in the middle of a blizzard. And this applies just as truly to the very interesting new accordion trailer by Stout, which contracts for transport and expands for living, as it does to the rigid cars made by the other designers. Either present product is not only admirable but almost unbelievable. So with that bow to the prowess and intelligence of the trailer manufacturers, let us proceed to analysis of the facts which show what is wrong with the statistician's prophecy.

The first fact is that the trailer of today, or as it promises to be at any reasonable price in any near future, is a perfectly grand portable dwelling and a rather mediocre fixed one. It is definitely too small. Two

elderly people with little dunnage, or perhaps any neat Japanese family, could live in one without too much effort and even with materially simplified housekeeping. An ordinary American father with two children who have not been made anemic by an unnatural life will certainly have perpetually barked shins from falling over the hobbyhorse. If one studies the life lived in the trailer, he soon observes that it is Egyptian in characteristic. The ancient Egyptians, it will be recalled, lived in the open air, usually cooked out of doors, and often even slept on the roof. Their rooms were small and dark, for shelter when it rained, as it rarely did, and for storage of a few valuables. So, too, the people of the trailer. They usually come home to sleep, often to eat. They bathe under cover. And perhaps once in a while on a wet day they sit inside and do bunk fatigue while listening to the radio. But it is the good life of the out of doors that makes the trailer possible: long hours of climbing in the hills in the few months when New England is benign and long days of basking on the sunny sands of Florida when Florida is benign, which is more often. The trailer is a perfect place to come home to sleep in, to cook in, to hang your hat in if you have a hat. But try living in one during a two weeks' fog on the shores of the Gut of Canso, or during the quarantine that even the health officers of a trailer colony will impose when your child gets the measles, as get he will. No, the trailer demands that the out of doors be the principal living room and that nature be friendly. This is important to remember because there is nothing yet to indicate that the majority of the work is not going to be done where the climate is not always friendly. Just to clinch this point, remember that the trailer might be insulated but if it were



. . . dashboard . . .
impossible as a mantel

it would be a lot heavier; that some one might provide a heating plant but that more space would be required; and that meanwhile the cost would be going up all the time. Is New York going to move to Miami Beach? We both imagine not.

The matter of the cost of the trailer is, of course, of significance. The trailer represents a lot for the money, in terms of mobile units, because mass production of units for sleeping and cooking has for the first time been achieved. (Pullman cars are really not products of mass production.) But in terms of space, and all facilities considered, it is not true that the trailer is cheaper than the same amount of house. Ask a carpenter builder and, if you can find a place where the law will permit you to build a permanent abode of the dimensions and facilities and quality of the trailer, try it out for yourself. We are always likely to fool ourselves in matters of this sort. We go aboard the yacht of some fortunate friend and see his glistening and compact galley, and we wonder why house designers can't achieve the same degree of compactness. They can't for just two reasons. The first is that compactness of that degree costs money and does not save it. A room, for example, can be priced within reason in terms of the number of openings it has. The increase in price for a few more square feet of floor or wall is almost negligible. When a builder starts working the other way, he soon finds that the compromises he has to make require extra charges. The second reason the designer can't do it in a house is that the designee would not stand for it. That devilishly clever locker on the ship, the one in the triangular space where one would have thought no storage could be found, looks like a spice drawer when you get it into a house and looks like an impossibility when you find that you have to go to a ship chandler and buy a triangular saucepan in order to be able to pack any saucepan away. Similarly, the decoration of the trailer is likely to fool one. Things we think remarkably beautiful on the walls of such an edifice when it is in the woods or on the beach don't please us when the house is anchored on a suburban lot. Think again of the neatly imitated wood panel of your automobile dashboard; perfect where it is, impossible as a mantel. We unconsciously make concessions in our admiration. The conclusion of all this is that the trailer is in itself a lot for the money, that under certain conditions of climate and certain social relations it makes for economical living, but that as serious housing on anything like its present basis it simply does not warrant consideration.

One very important factor in this question of economical living under trailer conditions has to do with the fact that up to the present the trailer owners have not been paying their way. At their recent convention in Sarasota, Fla., they rather openly boasted over a national news release that their taxes were very low. At the outset they suffered no taxes except those for gasoline and registration. Anyone's lot was good enough to squat on. New England farmers who first encouraged campers on the off-chance that they might sell them breakfast milk and eggs soon found that a small ground rent could and ought to be exacted. In Florida so far, certain communities, of which Sarasota is perhaps outstanding, have furnished parking spaces. The city of the

Ringlings has gone so far as to provide a 31-acre area divided into lots, 25 by 30 feet. These lots are serviced with water pipes and electric mains. There are police, recreation halls, community laundries, showers, means for disposal of sewage. And the lots rent for \$4.00 a month.

Now I do not know enough about the municipal economy of Sarasota to know whether this development is really self-supporting or not. I don't see how it can be. What such a development does do, of course, is bring a tremendous amount of trade into a town, and the merchants must be all for it. But I see no evidence that trailer people do not need hospitals, police, fire departments, and all the myriad community services that every other taxpayer has to help support. If these people are to be allowed to run around the country at will, descending now here, now there, like locusts on the plain, those who stay at home are certainly going to have to foot a bigger tax bill to pay for social services which others in trailers are getting essentially for nothing. Like Cousin Egbert Floud, the taxpayer can be pushed just so far. It makes only sense to see that ultimately this matter will be adjusted to the dictates of economics, presumably by a ground rent which will cover the cost of the social services rendered the trailer dweller. And when it does, trailer dwelling will not be nearly so attractive from a financial point of view. The trailer dweller has been getting something for nothing; no wonder he likes it.

Another serious problem is that which might arise on our highways if trailer owners are to be free to flit like the vagrant or the migrating bird. Trucks are getting so big that perhaps a few trailers won't matter, but without being facetious it is possible to visualize some rather horrible traffic situations come Labor Day moving day.

There may not be a Labor Day moving day, for Labor Day moving is associated with schools (which the trailer dwellers don't pay for and therefore have no right to enjoy). At present their temper is against schools; they praise the broadening influence of travel for their children. This cannot go on indefinitely or too largely. Nobody ever became properly fitted to conduct cancer research by batting around the country and never being subjected to the discipline of formal education in those facts of life which cannot be observed even at the filling station, the hot-dog stand, and on the beach. If the trailer development should get large enough to cut down seriously the crop of decently educated children, society for its own protection would have to step in or ultimately die the death of every ignorant society.

Finally, most people in a modern culture have to work, and have to work steadily in certain directions and in fixed places. Nomadism, as any student of ancient cultures knows, is for herders and warriors; the fixed abode is for farmers and artisans. We seem to be farmers and artisans, for good or ill and forever.

These should be sufficient arguments to suggest that the broad indications of a nation on wheels are slightly askew. Among the groups of population they now serve, and when brought into orientation with the economic structure of our society, there is no reason why the trailers should not continue to (*Continued on page 298*)

Any Color So It's Read

Books Should Be Like Mrs. Gamp's Gin Bottle

BY A. EDWARD NEWTON

"To make the M.I.T. Library the most serviceable scientific library in the United States" is the objective of the Friends of the M.I.T. Library which was formally launched at the dinner last month (see page 291) at which Mr. Newton delivered the address published below.

FRIENDS of the Massachusetts Institute of Technology Library — my friends, if I may call you so: You doubtless wonder why I am here, occupying this very distinguished position. You can't wonder more than I. Nor can you understand — I hope you cannot understand — why I have selected as my text, "Any Color So It's Read." I thought it was a good thing when I said it, and I haven't the slightest idea what it means. (Laughter) It occurs to me to say in connection with my punning title, that Henry Ford, when he first brought out the automobile that made him famous and gave him fortune, said that customers could have any color they chose, as long as it was black.

I am here because I am a not altogether unsuccessful essayist, not because I am a good speaker, as you will presently discover. One mistake I shall not make: I shall not talk down to my audience. I may make the mistake of regarding every man here as an intellectual mountain peak. I am certain that I have intellectual mountain peaks upon my left side; upon my right, I think I have a human being. (Laughter)

I hope that no undertakers — or morticians as it is now fashionable to call them — are present. The science of caring for a body after death, and before the ceremony of planting it, requires, I am told, great technical skill. In one of my recent essays, I developed one of my favorite theories, that "there is no such thing in nature as democracy; even an undertaker must take precedence over a garbage collector." I thought that was a clever thing to say and I did not think it would be challenged. But upon my return from a short trip abroad I found on my desk a letter, an anonymous letter, from a man who said: "You must be own brother to that — — — in the Middle West whose name must surely occur to you." The writer then went on to tell of the necessary knowledge that goes to make a complete mortician.

I received another letter, some time ago, from a lady, a librarian by trade, in a small town in Massachusetts, who said that she was enjoying one of my essays until she came across a paragraph in which I reflected upon that great and good man, Woodrow Wilson, whereupon she threw my book upon the floor. She signed that letter, and I addressed her a letter as follows: "My dear child: I am perfectly certain that if you throw upon the floor of your library all the volumes of which you do not approve, when the trustees come in they will find more volumes upon the floor than they do upon the shelves. And then how will you feel?"

Speaking of libraries, I visited this afternoon the Library of your great institution, and I was bewildered and delighted at the work that Library is doing. I saw there, for the first time (turning to President Compton, who had just given a superb demonstration of his knowledge of arithmetic), a copy of an early edition of Cocker's "Arithmetick," suited, as the title page says, "To the Meanest Capacity." It is evident that this book, sir, has not escaped your attention. Your copy was, as I remember, published in 1716 and was for sale at The Sign of the Three Bibles on London Bridge. It is probably one of the most interesting and amusing books in your Library. Study it well. There is another book of the same class which should be there, if it is not, and that is an early edition of Noah Webster's "Spelling Book," which has had perhaps a larger sale than any other book of its kind ever printed.

Archimedes, like yourself, sir, a dabster at arithmetic, is quoted as saying: "Give me a fulcrum and I can move the world." By all means give it to him; I don't want it. I have no wish to move the world. What I seek is to prevent the world moving me. I don't like its movement. I am a pacifist. I do not believe in war. In my judgment all wars are a mistake. The first great mistake that we made was the Revolutionary War. The second great mistake was the Civil War, and however we may differ as to the two I have mentioned I think you will agree with me that nothing good came out of the Great War. I like to think of myself as an 18th-Century English Tory; democracy is a subject for the hustings or means whereby a politician may prevent the digestion of an excellent dinner.

I read only this afternoon a charming book, "In Pursuit of Laughter," by my friend Agnes Repplier, a lady who will celebrate her 80th birthday in a few days, and I am to preside at a dinner which will be given her. This will prevent my attending Little, Brown's anniversary dinner, as I should like to, for the simple reason that I cannot be in two places at the same time. I shall have to be in Philadelphia protecting this excellent lady from a barrage of words which I am sure is, even at this moment, being prepared for her. In her book, "In Pursuit of Laughter," she says that the greatest American joke was that of Thomas Jefferson when he penned the first paragraph of the Declaration of Independence. With Miss Repplier I am in entire accord.

I AM in sympathy with these groups here and elsewhere who establish "Friends" of this library or that. If I am not mistaken, the first group so formed was in Cambridge, England — the Friends of the Fitzwilliam Museum. It was followed by the Friends of the Bodleian Library, the Friends of the British Museum, and similar groups throughout the world. I hope that the Friends of

SIGNED G. WASHINGTON

At the Friends of the Library dinner on March 25, a generous member of the Technology Corporation, who collects Cape Cod items, gave to the Institute Library the valuable letter reproduced at the right. The letter reads in part:

New York, June 10th, 1776

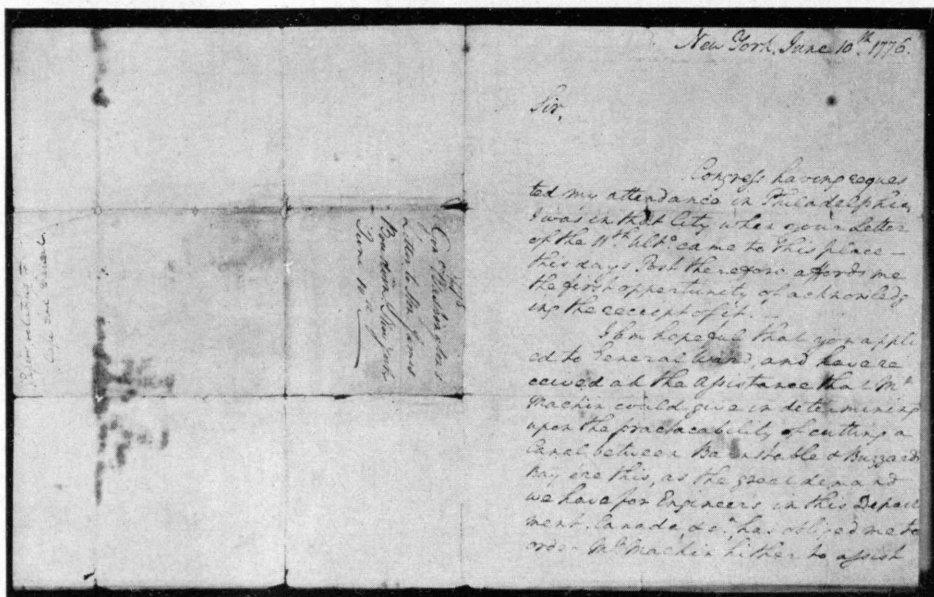
Sir,

Congress having requested my attendance in Philadelphia, I was in that City when your Letter of the 11th ult^o. came to this place — this days Post therefore affords me the first opportunity of acknowledging the receipt of it.

I am hopeful that you applied to General Ward, and have received all the assistance that Mr. Machin could give in determining upon the practicability of cutting a Canal between Barnstable and Buzzard Bay e're this, as the great demand we have for Engineer's in this Department, Canada, etc., has obliged me to order Mr. Machin hither to assist in that branch of business. . . .

G. WASHINGTON

Hon. James Boudoin, Esqr
Boston



the Massachusetts Institute of Technology Library may be worthy of this great institution. To make it so will require work; I know whereof I speak.

You have one of the greatest, if not the greatest, scientific libraries in America. Stick to your subject. There are other libraries devoted to literature, to history, and to Americana. There are the famous John Carter Brown Library in Providence, the Huntington Library in San Marino, Calif., the Morgan Library in New York, the Folger Shakespeare Library in Washington, D. C.; these institutions specialize in subjects other than science. Your subject, science, is an ample one. I suggest that the Friends of this Library leave other subjects alone. Such books as your Friends should buy, if I am correct in what I believe to be the province of a group of this kind, should be books that have a direct bearing upon the subjects which are taught in your institution.

Theodore N. Vail gave you a great library. I knew Mr. Vail only slightly, and I am indebted to your Librarian who was good enough to send me an account of the Vail bequest. It was a noble gift. I don't know how many of you remember Mr. Vail. He was a large man, and at his death I was elected in his place to membership in the Hobby Club of New York. I am a small man, as is perfectly obvious to you; shortly after I joined the Hobby Club it expired. I hope I was not the cause. I leave that to your kind judgment. Mr. Vail once advanced the scientific theorem — I am not sure that it was original with him — that a quart was an arbitrary measure not suited to a man's capacity. "For example," he said, "a quart of champagne is a little too much for one man and not nearly enough for two." I don't know that anything has been done about it, but here is work for your advanced students. The problem should be worked out with real champagne. (Laughter)

But I am here to speak of books and not of wine. Everyone — from Plato to myself — has sung in praise of books, from the sublime to the ridiculous. Emerson said that "no chair is more needed in a great educational institution than a professor of books." And that is, of

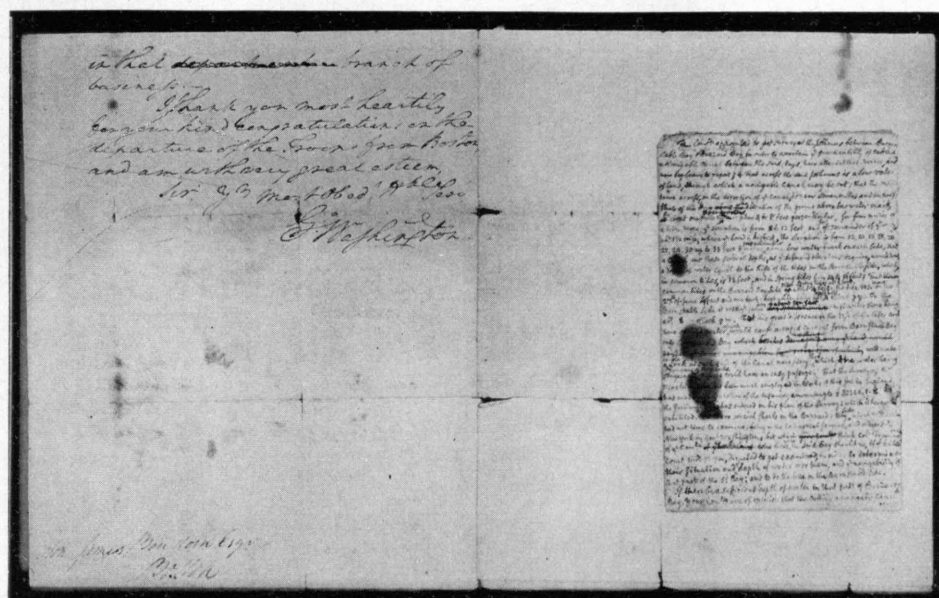
course, what a librarian is. I have said elsewhere that it is more difficult to get a good librarian than it is to get a railway president. A librarian should have the executive ability of a railway president, should read if not speak several languages, and should know something of most if not all the sciences taught in his institution.

Speaking of Emerson, I do not know just when it was that he asked the question: "Of what value is the electric spark?" and then, answering his own question, as is the habit of some of us, he said: "It is the toy of the laboratory and does no work." Emerson! When I was writing advertisements for I-T-E circuit breakers, back 35 years ago, I constantly quoted this phrase, and I said that were Emerson alive he would be very much surprised at the development in electricity that had taken place since his announcement.

No man has written more wisely about books and the library than Thomas Carlyle, that arch dyspeptic, for whom I hold no brief. He was one of the founders of the great London Library, one of the great circulating libraries of the world. His idea was that a university's problem is to teach one to read. And Milton in his "Areopagitica" said: "As good almost kill a man as kill a good book." In point of fact, today in this country a good book cannot be killed; unfortunately the same thing applies to a bad book. It may expire by itself.

You will not expect from me, I hope, any profound or original observations upon the value of books or the need that a great university has for a library. Let me merely say that books should be like Mrs. Gamp's gin bottle, so conveniently at hand that we can put our lips (our minds) to them when we feel so "disposed." You, sir (turning to the President), tell me you have done this. I shall pass on the good news to Mrs. Harris.

I never make an address of any kind without referring to my patron saint, Dr. Johnson. And Dr. Johnson said, very wisely: "The most expensive editions are the first, and the best are the latest." A great library should have all editions. No one but an author knows how much effort goes into the making of any book: "A man will turn over a whole library to make one book."



ENGINEER'S ESTIMATE: 1776

Given with the Washington letter were the committee report on the Canal (left) and the estimate (below) rendered by Thomas Machin. Mr. Boudoin's hopes for a Cape Cod Canal were not fulfilled for 138 years, and the cost was greatly in excess of Machin's total estimate shown below. Note in Washington's letter the great demand for engineers in 1776

If I understand properly the functions of a Friends group, and I think I do, it is to acquire such books as may not properly be called the tools. It is understood that in a great institution like yours, you will have the tools, but the treasures, the milestones that mark the road along which you have passed to your present perfection, if perfection it is, these things are rare, but they have a great archeological interest, and they should be, I think, acquired by a group such as is forming this evening.

We live, I need not remind you, in a scientific age. Electricity has been exploited; we know what we can do with it. The future will demonstrate its application; its full application is, I feel, still in its infancy. We used to say 40 years ago, when I first became a manufacturer of electrical apparatus, that "electricity is in its infancy." It no longer is, but there is a science of which perhaps it may be said that it is still in its infancy, and that is the science of the chemist. The alchemist of old has become the chemist of today. The alchemist sought to transmute a base into a precious metal. That is exactly what the chemist is doing. Gibbon says, and truly: "The command of iron soon gives a nation the command of gold." When the chemist turns wood into silk and the manufacturer turns silk into gold, the operation is approximately complete.

A few days ago I received a catalogue from the firm of Charles Scribner, the booksellers in New York. It was a catalogue of scientific books produced in the Nineteenth Century, with a few books published earlier. It listed a book which, if it is not in your library, certainly should be. Its title is "The Sceptical Chymist" and it was printed in London in 1661. It is not a tool. There are two copies of this book; I have referred to the first edition. The second edition was published in Oxford in 1680 with practically the same title, but adding, "Whereby Vulgar Stagirists" — I do not know what that name means — "are wont to endeavor to evince that salt, sulphur, and mercury be of the true principles of things." Those two books can be bought for \$1,200. If anyone here feels so minded, I would suggest that these books would be greatly appreciated by your librarian.

I need hardly point out how much good a generous man can do when he becomes library-minded, as the saying is. There was a gentleman, a Mr. McGregor, connected with the University of Michigan, who did an immense amount of good by giving five hundred dollars a year to a number of small colleges for the purchase of Americana, and my friend, Randolph Adams, who is one of the trustees of this bequest or fund, tells me that the amount of (*Concluded on page 306*)

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112	One barrel of sugar, 100 lbs		
	Sugar, 100 lbs, 100 lbs	45.00	15--
113	5000 yds at 67 p. yd	1336	10--
114	20000 yds at 67 p. yd	300	--
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117	20000 yds at 67 p. yd	300	12--
118	20000 yds at 67 p. yd	300	12--
119	20000 yds at 67 p. yd	300	12--
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184	20000 yds at 67 p. yd	300	12--

Lower low water mark on the Buzzards Bay side of the
pier was noted 33 feet 8 inches 1/4. From the summit of
low water mark on Round Hill Bay, side of pier 33 feet 4
inches - the former tide, according to the official observ-
ations, flows 2 feet 2 inches, but not lower than flows
12 feet.

By the help of two double levels a Canal may
be made with 12 feet of water that 100 feet long will
2 feet deep, thus the Atlantic.

Thomas Machin.

The World of Science

A Reading List Designed to Introduce Young People (and Their Elders) to the Progress and Possibilities of Science and Engineering

COMPILED BY MARGARET PAIGE HAZEN

Reprints of this reading list, sixth in a series prepared by the M.I.T. Library, may be obtained gratis by schools or teachers. Address requests to The Technology Review, M.I.T., Cambridge, Mass.

AMERICAN ASSOCIATION OF ENGINEERS. *Vocational guidance in engineering lines*. Mack Printing Company, 1933.

"Deals largely with the human side of engineering and answers the many questions of a youth who wants to know what else there is to engineering besides math and science." — *Boston Evening Transcript*.

ARNOLD, H. H., and IRA EAKER. *This flying game*. Funk and Wagnalls, 1936.

"Two United States army officers discuss the history of aviation, training and qualifications for flying and for other positions in aviation, airplanes, and airships of today, and probable future developments." — *Science News Letter*.

BINGER, W. D. *What engineers do: an outline of construction*. Norton, 1928.

"Tells the general reader something of what has been done and what is being done in the field of civil engineering." — *New York Public Library New Technical Books*.

BLACK, ARCHIBALD. *The story of bridges*. Whittlesey House, McGraw-Hill, 1936.

"Traces methods used in building bridges from the first primitive attempts to those of the present day. Special attention is given to the largest American bridges and their construction difficulties. Nontechnical and well illustrated." — *American Library Association Booklist*.

BOYD, T. A. *Research: the pathfinder of science and industry*. Appleton-Century, 1935.

"The author successfully undertakes to present research in industry, as well as in pure science, for just what it is, and illustrates his points with numerous quotations from well-known scientists." — *Industrial and Engineering Chemistry*.

BRAGG, W. L. *Electricity*. Macmillan, 1937.

"After a brief summary of what science has discovered about electricity, he turns to the applications in power transmission, motors and dynamos, power generation, telephones and telegraphs, and the oscillating circuits and vacuum tubes which make radio possible." — *Science News Letter*.

BROWN, E. L. *The professional engineer*. Russell Sage Foundation, 1936.

"What he earns, when, what he has to study, where he works, and what fields of work he may wander into after his technical education. A compact social study of the engineering profession." — *Science News Letter*.

CHAPPLE, H. J. B. *Popular television*. Pitman, 1936.

"Technique of television is explained in simple language, and sufficient information is given for the reader to visual-

ize why television is possible, what can be done with it, and what to hope for in the future." — *New York Public Library New Technical Books*.

CHASE, C. T. *Frontiers of science*. Van Nostrand, 1936.

"A discussion of the new trends in general scientific research, particularly in astrophysics, medicine, and chemistry. A book for the average reader with no particular scientific background." — *New York Public Library New Technical Books*.

DANTZIG, TOBIAS. *Number, the language of science; a critical survey written for the cultured nonmathematician*. Second edition, revised. Macmillan, 1933.

"A fascinating exposition of the evolution of numbers and the relation of mathematics to science." — *Outlook*.

DARROW, K. K. *The renaissance of physics*. Macmillan, 1936.

"Popular science at its best — lucid, accurate, authoritative, and yet in nontechnical language." — *Scientific Book Club Review*.

ENGINEERING FOUNDATION. *Engineering: a career — a culture*. 1932.

"Descriptive of the profession of engineering — of its spheres of action; of the training and the qualities required for its successful pursuit; of the obligations which it imposes, and the rewards which it affords." — *Preface*.

FITZHUGH, E. F., JR. *Treasures in the earth*. Caxton Printers, 1936.

"For the reader who has no previous knowledge of the many principles constantly used by those who are responsible for the discovery and recovery of mineral wealth." — *Scientific Book Club Review*.

GARBEDIAN, H. G. *The march of science: a popular introduction to the story of the universe and man's place on earth*. Covici, Friede, 1936.

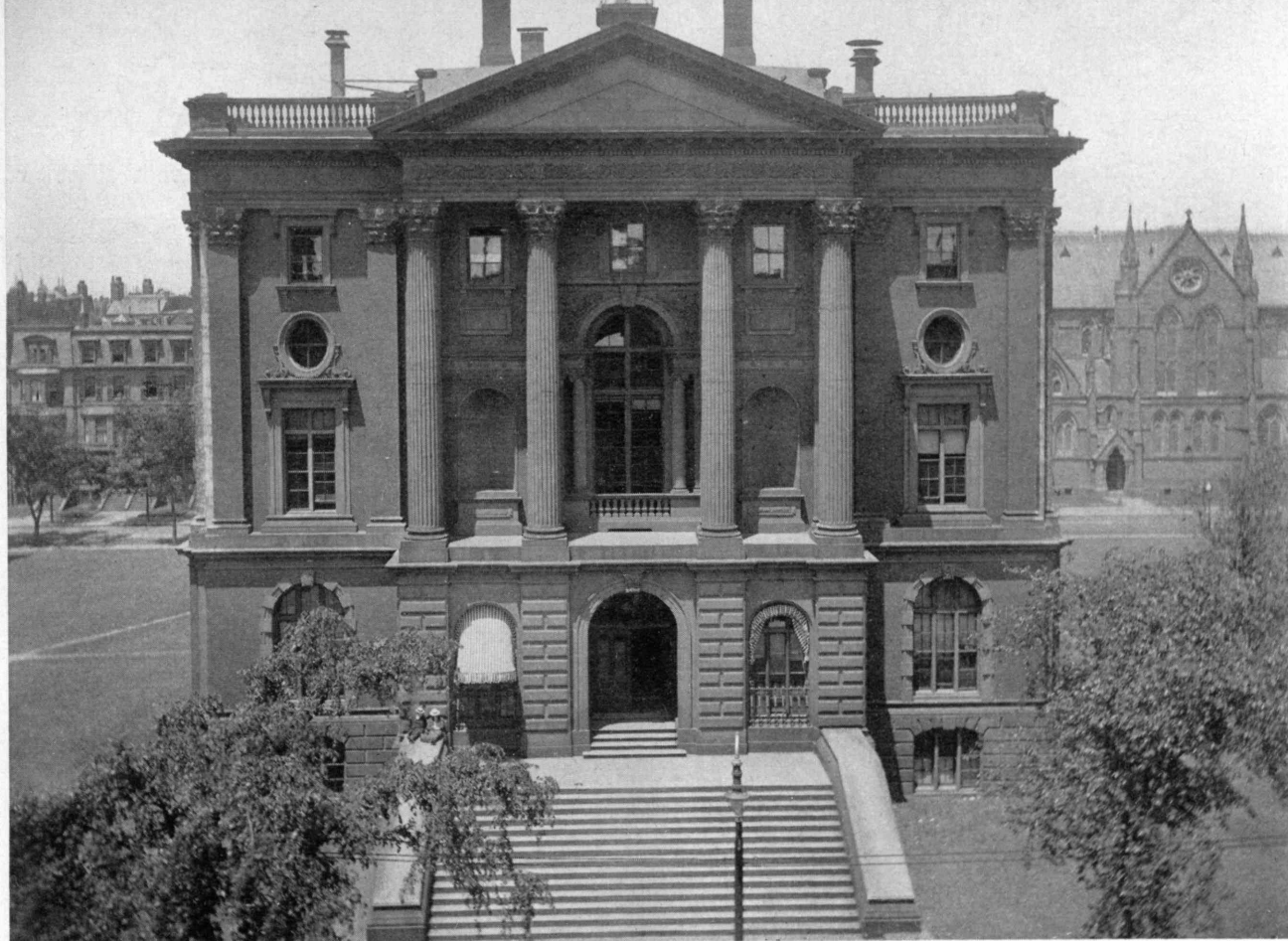
"Flowing, conversational discourse of all things in heaven and earth, from conjectures on what the 200-inch telescope may show us to possibilities of the new plastic chemistry." — *Science News Letter*.

GRAY, G. W. *New world picture*. Little, Brown, 1936.

"The reader who wishes to gain a comprehensive picture of the world of astronomical and physical science as it stands today may read Mr. Gray's book with confidence that the material presented is accurate and as up-to-date as it is humanly possible to make it." — *Scientific Book Club Review*.

HARLOW, A. F. *Old wires and new waves: the history of the telegraph, telephone, and wireless*. Appleton-Century, 1936.

"The history of the science of (Concluded on page 305)



FROM 1865 TO 1916

... the Rogers Building, one of the two buildings on the property just sold by the Institute, was the center of Technology life. Since the Institute moved to Cambridge, Rogers has been the home of the School of Architecture, which soon will have a new building in Cambridge. Technology men with long memories will recall how the Rogers Building was once consecrated "by a modicum of blood spilled by valiant sons in defense of the inalienable liberties of Rogers' steps against the incursions of overzealous minions of the law"

Farewell to Rogers

The New Building To Be Erected in Cambridge and the Sale of Tech on Boylston Street

BY an agreement of sale dated April 12, the last of the Institute's property in Boston is to be sold, and by action of its Corporation Executive Committee on April 14, authorizing the construction of an addition to its group of buildings in Cambridge, the Institute brought to near fulfillment its long deferred plan to have all departments of instruction under one roof. Assessed at \$2,000,000, the property to be sold occupies two-thirds of the entire block in Boston bounded by Boylston, Clarendon, Newbury, and Berkeley streets and includes the Rogers and Walker buildings.

THE NEW BUILDING

THE new Institute building in Cambridge, which will be the largest (at least 1,600,000 cubic feet) and the most important addition to the Institute's great interconnected group of buildings, will be designed primarily to house the School of Architecture which must vacate its present home, the Rogers Building, by June 30, 1938. If present tentative plans are carried through, however, it will be more than a home for the School of

Architecture; it may include a large auditorium and provide enough additional space to relieve the pressure for room in many parts of the present group of buildings.

In order to provide a logical basis for space reallocations and extensions, a detailed study of the space needs of each department is now well under way. Proposed reallocations will shortly be submitted to these departments for final study and approval this month, thus permitting the architect to prepare his plans in time to permit construction to begin in the fall.

Among the alterations proposed are a new chemistry lecture room in the space now occupied by Room 2-390, and a new departmental library in what is now Room 5-330, a lecture hall. The new chemistry lecture hall will be completely equipped for experimental lectures and will be comparable in its design and appointments to the excellent lecture hall in the Eastman Research Laboratories. Its availability will greatly simplify freshman class schedules by supplementing Room 10-250, now greatly overworked. The new departmental library with adjacent seminar rooms may serve the Departments of

Business and Engineering Administration, Economics and Social Science, Civil Engineering, and Naval Architecture. It is hoped to effect many of these space reallocations in the present buildings this coming summer in order to simplify the readjustments incidental to the opening of the new building in the fall of 1938.

Welles Bosworth, '89, distinguished architect of the present buildings, is being recalled from his home in France to plan the new unit. For a number of years he has been in charge of a Franco-American committee for the restoration of the palaces and parks of Versailles and Fontainebleau, and of Rheims Cathedral. When he begins his plans he will find that the T-shaped building envisioned by the Executive Committee fits in almost exactly (even to some of the foundation piles already in place) with the bold and comprehensive plan, laid down by him prior to 1916, for future extensions to the Technology group of coordinated, connected buildings.

Fronting on Massachusetts Avenue and joining the Pratt School of Naval Architecture (the top of the T), the stem of the new building's T-plan will connect with Building 3 at the entrance now designated as 69, giving a direct passageway from an imposing entrance on the avenue to the central portion of the present group where the offices of administration are located. These details of the new building's plan are entirely tentative; they are presented to give an idea of what can or may be done and to afford a clearer idea of the magnitude and far-reaching effect of the new project. And while this new building rises, there will be under construction north of it and behind the Guggenheim Laboratories the new wind tunnel announced in *The Review* last month. This year and next, therefore, will witness milestones in the physical growth of Technology; President Compton's far-sighted plans for expansion under his equally bold and brilliant leadership are being translated into reality well ahead of schedule.

THE STORY OF ROGERS

THE New England Mutual Life Insurance Company, purchaser of the Boston property, plans to remove the Rogers and Walker buildings and to erect in their place a new home office which it expects to make one of the finest office buildings it is architecturally possible to design and one which will benefit the whole neighborhood.

The agreement to sell "Tech on Boylston Street" and the authorization to proceed with plans for the new building in Cambridge mean, of course, that the Institute will soon bid a final, affectionate farewell to Rogers, the cradle of Technology and beloved sanctuary of its past. One farewell came in 1916 when all but the School of Architecture moved to Cambridge; at that time there was delivered in Rogers' Huntington Hall, from the platform upon which William Barton Rogers, founder of the Institute and builder of the building in 1865, was stricken, a tender and inspiring oration that is even more salient, timely, and appropriate today than it was then. This tribute of love, one of the most memorable of Technology papers, was delivered by the late James P. Munroe, author of the official biography of General Walker, once Secretary of the Faculty, and throughout his career active, eloquent exponent of Technology ideals. From *The Review* of July, 1916, we

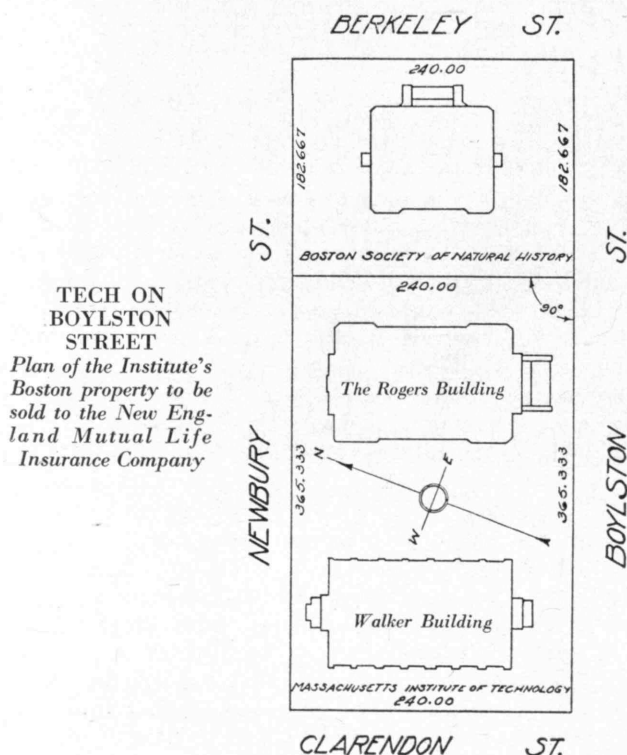
reprint the larger part of Mr. Munroe's farewell to Rogers, not only for its tender, regretful reminiscence of early Technology days, but to emphasize the extent to which his aspirations of 20 years ago have become or are becoming realities today. Mr. Munroe:

HOWEVER indifferent he may elsewhere be, even the so-called practical man cannot remain unmoved in Westminster Abbey. Its solemn architecture sheltering so much of British and American history, its chapels steeped in the weighty deeds of prelates and of kings, its monuments, ugly indeed, but bearing world-compelling names—all combine to stimulate the coldest mind.

Should that visitor, moreover, come in at a moment when the music of a service is filling the glowing spaces of the Abbey, the effect, even to the calloused, is little short of overwhelming. To restore his emotional balance, however, he has but to enter the cloisters and to find there the little stone, so homely in its appeal, the famous tablet to: "Jane Lister, dear child." Who Jane Lister was we know not; through what whimsical chance she strayed among those titled ghosts we care not; sufficient that among this great congregation of the dead, she gives the sought-for and the needed human touch.

While, save for the simple tributes to Rogers and to Walker, this building holds no monuments, nonetheless is it our Westminster Abbey, our sanctuary of the noble past, our place of aspiration toward the nobler future. For 50 years this has been the heart of what the Institute has meant—what it has meant in the search to interpret Nature, what it has meant in the reform of education, what it has meant in the ceaseless task of fashioning from plastic youth the solid fabric of true men.

The thoughtful mind, witnessing in Westminster Abbey the complex pageant of modern civilization,



finds its human point of contact in that little, pathetic tomb of the "dear childe." Likewise, the discerning intellect here, seeing beyond these walls the colossal implication of this greatest of half-centuries, finds, too, its abiding satisfaction in the simple fact that the Rogers Building means, to us children of Technology, just love. Not ordinary human affection — which, however, is far from being ordinary — but an affection subtle, not easy to be expressed, a love made up in part of loyalty, in part of tender regret for youth that comes but once, in part of the knowledge that the space bounded by these four walls has been one of the major forces in our adult lives.

Therefore, while I might try to rehearse the vast gains in pure and applied science which this building, as the center of an important school of technology, typifies, while I might attempt to place before you, in almost unbelievable contrast, the educational ideals of 1866 and those of 1916, while I might endeavor to suggest the radical changes in social, industrial, and moral life wrought by what this institution stands for, to do so would be to lose the true meaning of this occasion, would be to forget the real significance of this building, would be to assume that what *we* see in it is only what the outsider sees; whereas its actual appeal to us, the sons and daughters of the household, is that of the hearthstone around which we are today sitting for the last time together. It is a hearth, however, the Promethean flame of which, far from being about to flicker out, is destined to kindle still more radiant fires on the other side of those narrow waters which, in their leveled beauty, are themselves a ceaseless witness to the art of the engineer.

There is probably sound basis for the belief that men and women born in times of exceptional moral conflict — at such epochs, for example, as that now shaking the foundations of the world — go through life with soberer minds and keener emotions than those given to the rest of us. Perhaps that is one of the reasons why this building, conceived in the period of the Civil War, has had upon those passing within its influence an effect so unusual and so profound. Surely, moreover, if to be born into direst poverty and to make headway against every obstacle be an experience fortunate for a man, this building also has followed the true way; for only an initial vigor little short of fabulous could have brought the Institute to its glorious manhood through the starved and stormy period of its infancy and youth.

Is it fantastic, furthermore, to maintain that another element in the moral strength of this Old Rogers of ours is its cosmopolitanism? Built in the brain of an Irishman with a strong Scottish strain, it took architectural form after the best French models. Inheriting directly, of course, the English tradition in education, it sought inspiration, from the very first, in the technical teachings of Germany; while, on the side of the practical arts, it was counseled by Russia and by Scandinavia. And today, students past and present, from over 50 distinct regions of the world, honor and love it as the soul of their teaching mother.

In a letter written in 1865, President Rogers said: "The 'new building' referred to in my letter is intended for the use of the school and such part of the Museum as will be first collected. . . . This building, 150 by



THE WALKER BUILDING

. . . since 1916 occupied by one of the schools of Boston University. Along with Rogers it will be torn down to make room for the new home office of the New England Mutual Life Insurance Company

100 feet, will, I trust, afford sufficient space for all the operations of the school for many coming years."

For 18 such years, save for certain excrescent sheds — even they being dear to us "old boys" of Tech — the building thus referred to by Rogers, the building honored by his illustrious name, did stand alone, dignified, but cruelly poor. The Walker Building, the Engineering Buildings, and a number of other edifices — substantially all of them created through the applying of a large leaven of faith to a tiny lump of actual, ready money — have since, on this side of the Charles, arisen; but this original house has remained the administrative center and the recognized heart of the fast-growing Institute. It has actually been consecrated, moreover, by a modicum of blood spilled by valiant sons in defense of the inalienable liberties of Rogers' steps against the incursions of overzealous minions of the law.

It is no small thing, then, which this meeting symbolizes. The farewell that we are taking is no perfunctory good-by. On the contrary, it involves the uprooting of traditions, of sentiments, of loyalties that have been digging themselves deep for half a century. And in the life of a college 50 years are equivalent to at least 400. For while that half-century spans less than *two* human lifetimes, it covers more than *twelve* college generations; and, since in each of those the doings of even its immediate predecessors are lost in antique obscurity, this Rogers Building is indeed of hoary age, going back to the "time whereof," from the standpoint of the undergraduate, "the memory of man runneth not to the contrary."

All the more wonderful, therefore, that the traditions which have come down to these students of today are very flesh and bone with those established by President Rogers, by his devoted associates on the Corporation and Faculty, and by those pioneer youths of 1865, who, bringing to the Institute, perhaps, no very great technical equipment, brought what is far better: earnestness, sobriety, thirst to learn, and industry to make that knowledge of the fullest effect.

It has been tartly said of one of our great seats of learning that it must be brimming with (*Continued on page 296*)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

IN THIS SECTION

Appointment of a Dean of Humanities (below); A New Department of Instruction (opposite); Friends of the Library Dinner (291); Establishment of a Six-Year Course in City Planning Practice (291); Staff Appointments and Promotions (292); Visiting Committee Report, Department of English and History (292); The Coming Housing Conference (295)

Dean of Humanities

AMONG the striking trends at the Institute in recent years has been the increasing amount of time and emphasis placed upon the humanities as an integral part of its engineering and scientific curricula. Additional impetus is now given to this trend by the creation of a new administrative post, the Dean of Humanities, for the coördination of the Institute's wide range of studies falling without the professional programs.

"The appointment of a dean of humanities at Technology," said President Compton in announcing that the post would be filled by Dr. Edwin S. Burdell, '20, Associate Professor of Sociology, "is another significant step in the efforts of this institution to meet the challenge of the changing social order in America. In earlier days the urgent need was for men, trained in science and its applications, who would bring about the development of industries, the wise utilization of natural resources, and the creation of homes, transportation, communication, and public services throughout the country. The need for such men to develop and operate the physical plant of the country is undiminished, and will continue to be the keynote of the Institute's program of education and research.

"The country, however, is faced more than ever before with the human problems, many of which are closely related to technological developments. The engineer, architect, and scientist have been so successful in the latter field, and have come naturally and in such rela-

tively large numbers into positions of great social responsibility, that they realize the need of increasing attention to two aspects of the training of their successors. The first is development of a high sense of responsibility and understanding in social matters, so that the goal of technological success is accompanied by an unselfish desire to aid in the improvement of human relationships. The second is development of those spiritual qualities that bring permanent satisfaction in living. All technological institutions and societies are giving increasing attention to these matters.

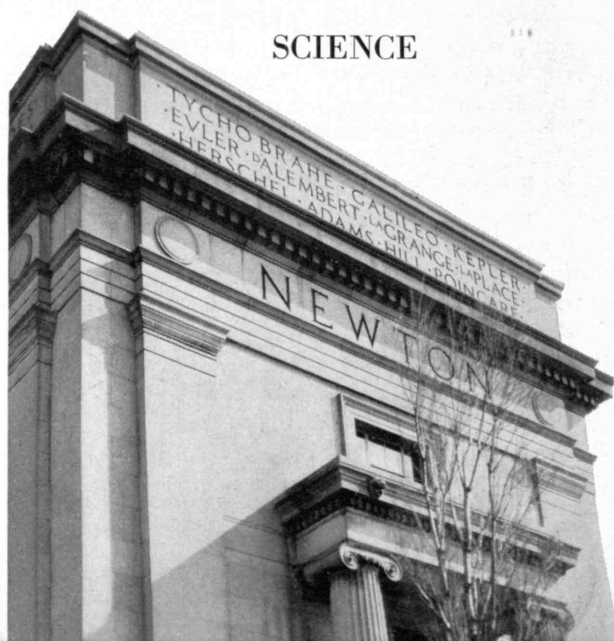
"At Technology an important portion of the students' time has for many years been set aside for cultural and social studies. The Dean of Humanities has been appointed to consolidate the work in this important field and to assure the most fruitful attention to this aspect of the Institute's curriculum."

In 1934 Dean Burdell, then a member of the department of sociology of Ohio State University, was called to Technology to accept an appointment as associate professor of sociology. While in Ohio he became widely known for his work as a member of the Ohio State Relief Commission. He was also a member of the Ohio State Commission on Unemployment Insurance and is a former chairman of the Municipal Housing Committee of Columbus.

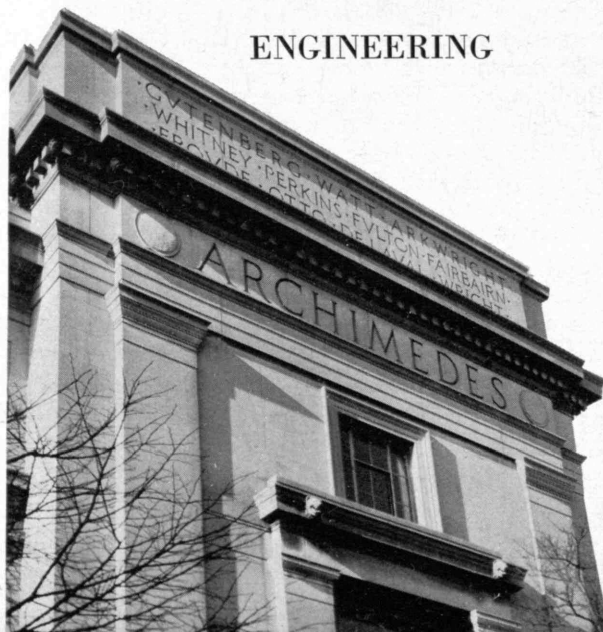
In addition to his activities in the Department of Economics and Social Science, Dean Burdell is chairman of Technology's summer school committee. He is also chairman of the National Committee on Instruction and Research in Housing, which was created early this year, and is special advisor to the administrative section of the Federal Housing Administration for the New England region. Last summer Dean Burdell served as special technical advisor in charge of the development of a series of studies on zoning administration for the State Planning Board of Massachusetts.

Dean Burdell will have administrative responsibility for the Division of Humanities which includes the Departments of English and History, Modern Lan-

SCIENCE



ENGINEERING



guages, and certain aspects of Economics and Social Science. He will also direct, with the aid of a faculty committee, the wide variety of cultural courses which as General Studies have long been part of the Institute's regular curriculum. These include literature and the fine arts, history of civilization, history of science and thought, and social science. (For further discussion of the Division of Humanities see the report (page 292) of the Visiting Committee on the Department of English and History.)

Division of Departments

KEEPING pace with advancing knowledge and changing conditions in industry, the Institute has divided its Department of Mining and Metallurgy into two distinct professional fields: Beginning next autumn, the Department of Mining Engineering will be administered as a separate professional department under the direction of Professor W. Spencer Hutchinson, '92, who for many years has been Head of the Courses in Mining and Metallurgy. His Department will also include the Course in Petroleum Production. The new Department of Metallurgy will be directed by Dr. Robert S. Williams, '02, Professor of Physical Metallurgy, and will include the Course in Ceramics.

In announcing this important change in technical education at a meeting of the Faculty on April 14, President Compton said that advances in mining engineering and the significant progress in metallurgy make it desirable to recognize them as separate professional fields, each of great importance and each promising in opportunities.

"Technical developments in recent years and the growing complexity of both fields," he said, "have led us to the conclusion that it is no longer necessary nor desirable for students to attempt to master both mining engineering and metallurgy as one profession. The obvious stores of the great natural resources of the world are now in process of recovery, but as time goes on the mining engineer will be confronted with the increasingly difficult task of discovering and developing the more remote sources of supply. To do this he will need a profound knowledge of fundamental scientific and engineering principles. New methods and new economies will be required, and all the facilities of the best

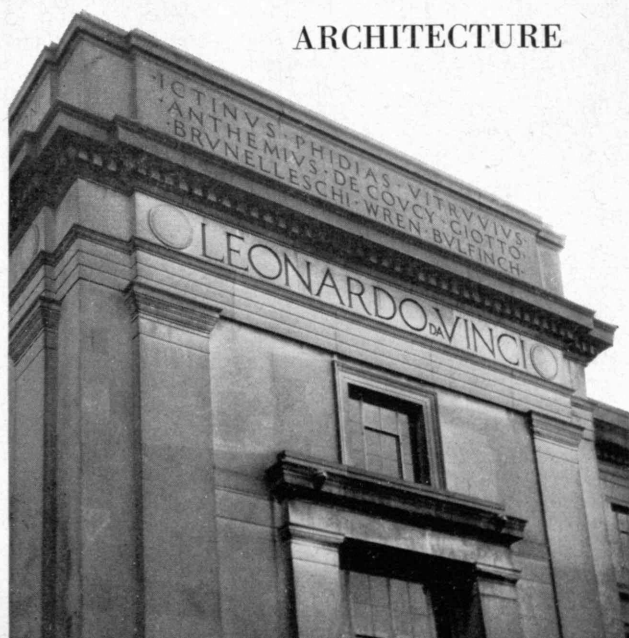
technical training will be necessary to keep pace with the demands for his products. We propose, therefore, to train the mining engineer specifically for his very important profession of discovering and producing the earth's natural resources. Metallurgy as a profession is coming of age, and the promise of its maturity will best be fulfilled by the highest degree of scientific training. The metallurgist now requires not only a thorough training in the processes and physics of metallurgy but a knowledge of physical chemistry, electrochemistry, and ceramics. What metallurgy has accomplished in recent years in the development of innumerable alloys of steel and lighter metals, thus opening a new era in transportation and comfortable living, forecasts a future rich in prospect."

The new Department of Metallurgy will give special attention to physical and process metal as well as metallurgical production. The latter is concerned primarily with the economic and statistical functions of the industry; the two former involve application of basic, scientific principles to the production and treatment of metals.

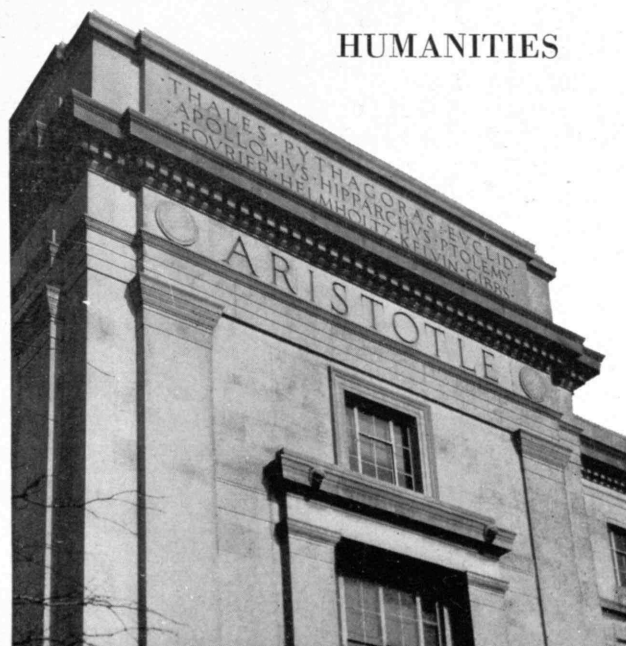
Mining and metallurgy, as well as geology, have been part of the Institute's curriculum since its establishment. Technology was the second American school to graduate mining engineers, following Columbia University by a year in 1868. The Institute had the first American laboratories in mining and metallurgy, and these became the models which were followed by many other educational institutions. The first lectures in metallurgy were given by Professor Charles W. Eliot, later to become one of Harvard's most famous presidents. Professor Robert H. Richards, a graduate of the Institute's first class and its oldest living alumnus, began teaching at the Institute in 1868, the year of his graduation. In 1873 he became Head of the Department of Mining Engineering and was in charge until his retirement in 1914.

In addition to its many laboratories at the Institute, the Department maintains a summer mining camp at Dover, N. J., where students are given practice in actual mining operations in a modern iron mine. From Technology's Department of Mining have come some of the country's most distinguished mining engineers and industrial leaders, and its Alumni are found in almost every country in which mining is practiced.

ARCHITECTURE



HUMANITIES





MAIN READING ROOM OF THE M. I. T. LIBRARY

... as photographed from the top of the dome. For an account of how the Friends of the Library plan to aid the Library's growth, see opposite

Friends of the Library Dine

CHABLIS VAUDÉSIR, 1929, *m.d.p.*; *Moulin à Vent Carquelin*, 1929, *m.d.p.*; *Old Hundred Oloroso* — so ran the chaste wine list, itself somehow suggestive of choice, rare books, at the inaugural dinner of the Friends of the Library at the Algonquin Club, Boston, on March 25. Choice, too, was the menu card designed and printed with loving care by Daniel Berkeley Updike, the distinguished printer, and rare indeed was the letter (reproduced on pages 282 and 283), dated 1776 and written by G. Washington, presented to the Institute Library at the dinner by a member of the Corporation who prefers to remain anonymous.

Beyond these vinous, typographic, and bibliographic items were other items that lent distinction and urbanity (we enjoyed this dinner, as you doubtless gather, very much): the brilliant presiding of Dr. Harlow Shapley, Chairman of the Corporation Visiting Committee on the Library, who lent an astronomical import to the occasion by his free-style computation of the date of judgment day and an entomological touch by his memoir of that curious insect, the ox warble; President Compton's use of near-astronomical figures in describing Dean Bush's tentative plans for a reference selector for use by libraries; the amenities of A. Edward Newton, the principal speaker, whose address is printed in this issue (page 281); and the discussions of library policy by librarians of important libraries, especially by Milton Lord of the Boston Public Library.

"What is the Friends of the Library, and what are its objectives?" you may be asking. John E. Burchard, '23, Chairman of the Alumni Committee on the Friends which planned this dinner, answered these questions in his remarks opening the after-dinner program. The Friends seek, stressed Mr. Burchard, "to make the M.I.T. Library the most serviceable scientific library in the United States."

And further, he explained: "The Friends of the M.I.T. Library is a new organization. Many other universities have had groups of Friends for years. Their broad purpose is always similar and perhaps obvious: It is to aid in every proper way in the development of the library of the institution to which they are allied. The manner in which they do this varies with every group. Some of the groups are very exclusive clubs, consisting only of members who make rather large financial donations which are spent in buying things for the library; others are more democratic; but most of them have as a requirement for membership some form of dues, either money or books. Our proposed membership is, I imagine, somewhat unique, as you will see for yourselves."

"The Friends of the M.I.T. Library will welcome to its membership people of both sexes, of every walk of life, alumni of any institution, alumni of none. It will ask its members for no dues whatsoever; it will indulge in no drives for funds; association with the Friends will presume no financial obligation now or in the future. There will, of course, be other obligations; in many ways I imagine a more severe obligation, for check-writing is often the easiest of all things to do. The obligation we visualize is an interest in the kind of scientific library we have and are going to have at Technology; an inter-

est whose degree will naturally vary with the individual but which we expect every member of the Friends to have in some degree. This interest will be put to use in attaining the objective of the Friends which I now may define.

"The objective of the Friends is to assist the administration of the Institute in attaining its library objectives. What those are it is not the place of the Friends to say. The very broadest objective, however, may properly be stated. It is 'to make the M.I.T. Library the most serviceable scientific library in the United States.' With that objective I am quite certain none of you will quarrel. In its attainment you might all, as residents of this community, take pride.

"There are many times in the working out of such a program when normal administrative appropriations cannot be immediately applied and yet where the need is great. It is this sort of situation that our society has been devised to meet. We shall from time to time send to our membership library reports which will indicate, we hope with considerable clarity, certain needs. Naturally, we will hope that the explanation of this or that need will pluck a responsive string in the minds of some one or other of the Friends. When this string starts vibrating, we naturally also hope that music sweet to the ears of the M.I.T. Library will result. But the music will be voluntary, and no effort will be made to impose forced vibrations."

We commend for your consideration these plans and aspirations. We hope that many who read this, and who could not be at the dinner, will participate to whatever degree they may in the work of the Friends and thus become members, and that they will give evidence of their interest to Mr. Burchard (address him care of the Alumni Association, M.I.T.) or to William N. Seaver, the Institute Librarian who, with quiet efficiency, is building the library which the Friends seek to help him build.

Reality in Professional Training

LAST year the School of Architecture established a plan of instruction under which first- and second-year students quickly encounter the realities of their profession through the design, supervision of construction, and sale of a house. Another step in combining the benefits of field experience with professional training is the establishment of a six-year Course in City Planning Practice. The new Course, which has just been announced by Dean William Emerson, follows closely the successful procedure adopted for the coöperative Courses in Electrical, Chemical, and Mechanical Engineering, and Marine Transportation.

The profession of city planning lends itself particularly to an arrangement of this type. Most of the activity in city and regional planning is being carried on by municipal, state, and national governments, and several such agencies will coöperate with the School of Architecture in this program, which is designed to familiarize the student with the practical aspects of his profession. The Institute is fortunate in this respect, for Boston not only has a city planning board, but is one of the chief centers of regional planning in the country. The

Massachusetts State Planning Board is located in Boston, and the offices of the Division of Metropolitan Planning, the New England Regional Planning Commission, and the City Planning Commission of Springfield are also within easy reach and will cooperate. Almost every city and town in the Boston metropolitan region has a local planning board, and over 130 such boards are functioning in the state. Boston, therefore, is the nucleus of a region in which the geographical, social, economic, and political characteristics combine to create a laboratory of comprehensive planning unsurpassed in the country.

The curriculum provides for a cooperative Course with a year of varied experience in the offices of local, state, and regional planning boards. This is accomplished by assigning summer work at the end of the fourth and fifth years of the six-year program, and an additional period of office practice in the fifth year. The course will lead to the degree of master in city planning, together with the degree of bachelor of architecture in city planning as of the preceding year. The proximity of the local, state, and regional planning offices makes possible a program which includes regular lectures during the periods of office practice. The latter will be broken up into three sections of four months each and will alternate with work in City Planning Design in the School of Architecture. With this background a student will not only approach his academic work with a more realistic viewpoint, but should graduate with a better understanding of his professional field and a greater expectation of being of immediate value to his employers.

The Course in City Planning Practice will be given in the newly organized Division of City Planning and Housing under the direction of Assistant Professor Frederick J. Adams. Among the authorities in this field who will lecture from time to time in the Course are: Sir Raymond Unwin, lecturer in city planning and housing; Joseph T. Woodruff, '17, assistant professor of regional planning; J. Ross McKeever, instructor and assistant librarian; Thomas Adams, research consultant in city planning; Marjorie S. Cautley, lecturer in site planning and landscape design; William S. Parker, lecturer in housing, and Ralph Eberlin, lecturer in site planning and construction.

Elevations

PROMOTION of 39 members of the teaching staff and five new appointments were announced at the Institute recently. Members of the Faculty promoted to the rank of full professor were: Ralph D. Bennett and Edward L. Bowles, '22, of the Department of Electrical Engineering; Karl D. Fernstrom, '10, Department of Business and Engineering Administration; Philip Franklin, Department of Mathematics; Murray P. Horwood, '16, Department of Biology and Public Health; George Scatchard, Department of Chemistry; Edward R. Schwarz, '23, and Alfred V. deForest, '11, of the Department of Mechanical Engineering.

Promoted from assistant professorships to associate professor were: Edward S. Taylor, '24, of the Course in Aeronautical Engineering; Arthur L. Townsend, '13, of the Department of Mechanical Engineering;

Bernard E. Proctor, '23, Department of Biology and Public Health; John B. Wilbur, '26, Department of Civil and Sanitary Engineering; Murray F. Gardner, '24, Richard H. Frazier, '23, and Parry H. Moon, '27, all of the Department of Electrical Engineering; John Wulff, Wayne B. Nottingham, and Nathaniel H. Frank, '23, of the Department of Physics.

Members of the staff promoted to the rank of assistant professor were: Herbert C. Moore, '24, and Charles W. MacGregor of the Department of Mechanical Engineering; Ernest N. Gelotte, '23, School of Architecture; Robert S. Harris, '28, Department of Biology and Public Health; Ronald H. Robnett, Department of Business and Engineering Administration; George G. Marvin, '23, and Edmund L. Gamble, '30, Department of Chemistry; Arthur C. Ruge, '33, Department of Civil and Sanitary Engineering; William M. Hall, '28, Department of Electrical Engineering; Paul C. Eaton, '27, Department of English; Robert H. Cameron, Department of Mathematics; Morris Cohen, '33, Department of Mining and Metallurgy; and Jorgen Holmboe of the Course in Aeronautical Engineering.

Promoted to the rank of instructor were: Archibald Williams, Jr., '23, Business and Engineering Administration; George A. Akin, '35, Chemical Engineering; Edward R. Livernash, Department of Economics and Social Science; Henry E. Kiley, '33, Leopold R. Michel, Blake Mills, '35, and Roger L. Putney, '33, all of the Department of Mechanical Engineering; and Reinhardt Schuhmann, Jr., Mining and Metallurgy Department.

New appointees include H. W. Fairburn as assistant professor of geology; Niels H. Larsen, instructor in architecture; Robert V. Lukes, '35, instructor in chemical engineering; Alberto F. Thompson, Jr., instructor in chemistry; and James G. Baker, '36, assistant director of the School of Chemical Engineering Practice.

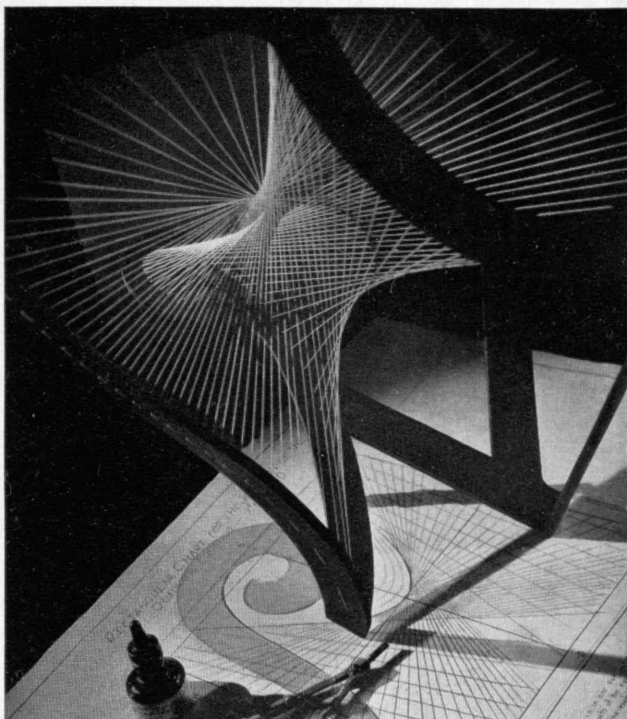
English and History

IT is particularly appropriate that the condensation below of the last Corporation Visiting Committee Report on the Department of English and History should be published simultaneously with the announcement on page 288 of the appointment of a Dean of Humanities. It contains, as will be noted, a discussion of the advantages of the Institute's having such an administrative officer.

DEPARTMENT OF ENGLISH AND HISTORY *

Admission Standards. The Committee's recommendation, made two years ago, that the Institute should give its own entrance examination in English to all applicants has been taken care of by the Institute's newly adopted method of selective admission. We do not now feel that a special entrance examination in English is necessary. The Committee, however, does share a strong feeling, expressed by members of the department staff, that the work of the Department could be improved if

* The members of this Committee for 1936-1937: Donald G. Robbins, '07, Chairman, W. Cameron Forbes, Hovey T. Freeman, '16, Albert H. Wiggin, J. Rhyne Killian, Jr., '26, George P. Dike, '99, Arthur N. Holcombe, Greville Haslam, '15.



1. MATHEMATICS

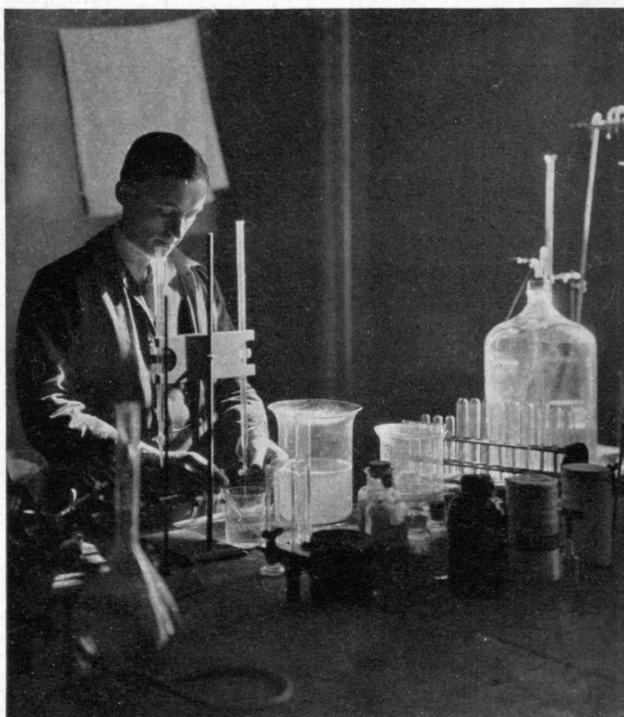
Fortune

2. PHYSICS

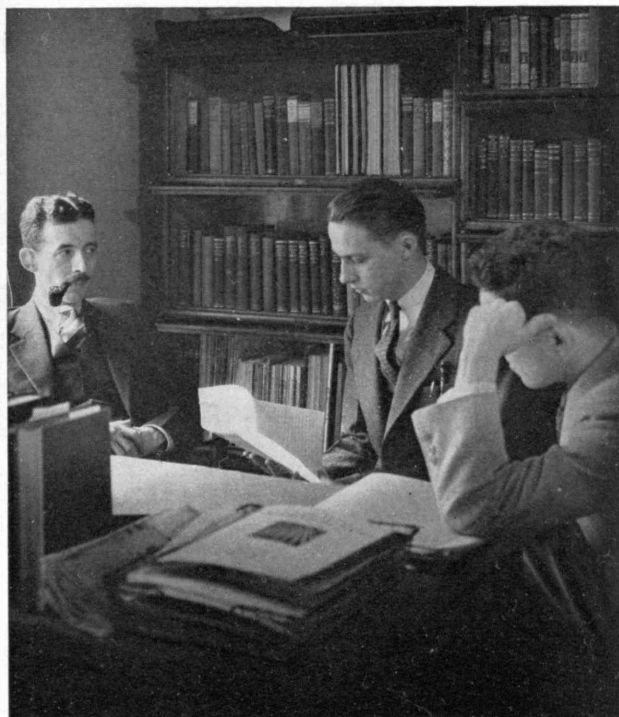
TECHNOLOGY FUNDAMENTALS

WHEN the freshman begins his work at the Institute, he finds that the subjects of study consist mainly of such fundamentals as physics, chemistry, mathematics, and the humanities. It is not until the third year that students in different Courses find their paths diverging, but

even as they then begin to major in selected fields they find a continued emphasis on fundamental science, humanities, and design. The appointment of a Dean of Humanities (page 288) calls attention anew to Fundamental No. 4 in the Institute's program.



3. CHEMISTRY



4. THE HUMANITIES

THE FIRST SUNDAY

A TEN YEAR CALENDAR

IN THE FOLLOWING TABLE ARE SHOWN THE DATES
OF THE FIRST SUNDAYS IN EACH MONTH, FROM
1937 TO 1946 INCLUSIVE—(30 DAYS HATH SEPTEMBER ETC)

	1937	1938	1939	LEAP 1940 YEAR	1941	1942	1943	LEAP 1944 YEAR	1945	1946	
Jan.	3	2	1	7	5	4	3	2	7	6	Jan.
Feb.	7	6	5	4	2	1	7	6	4	3	Feb.
Mar.	7	6	5	3	2	1	7	5	4	3	Mar.
Apr.	4	3	2	7	6	5	4	2	1	7	Apr.
May	2	1	7	5	4	3	2	7	6	5	May
June	6	5	4	2	1	7	6	4	3	2	June
July	4	3	2	7	6	5	4	2	1	7	July
Aug.	1	7	6	4	3	2	1	6	5	4	Aug.
Sept.	5	4	3	1	7	6	5	3	2	1	Sept.
Oct.	3	2	1	6	5	4	3	1	7	6	Oct.
Nov.	7	6	5	3	2	1	7	5	4	3	Nov.
Dec.	5	4	3	1	7	6	5	3	2	1	Dec.
	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	

EXAMPLES

TO FIND THE DAY OF THE WEEK OF CHRISTMAS IN 1941—From the Table; the date of the first Sunday in December 1941 is the 7th; the third Sunday is therefore the 21st; Monday is the 22nd; Tuesday the 23rd; Wednesday the 24th; and Thursday the 25th.
TO FIND THE DAY OF THE WEEK OF THE FOURTH OF JULY, 1946—From the Table; the first Sunday is the 7th; Saturday is the 6th; Friday is the 5th; and Thursday the 4th.

Should one acquire the habit of remembering the date of the first Sunday of each current month, one would never be at a loss for the usual form of Calendar.

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entering students and the secondary schools which prepare them could be made more cognizant of the high standard in English preparation which must be met if students coming to the Institute are to derive maximum benefit from the curriculum of the Department. There is some evidence that preparatory schools, when training men for the Institute, tend to skimp preparation in English in concentrating upon scientific subjects, and there is an opportunity here by literature and through the work of the director of admissions to establish in preparatory schools a better understanding of the importance of thorough training in English for candidates applying for admission to Technology. The faculty committee on admissions has already taken steps to emphasize and apply this higher standard, and we hope that its efforts under the new selective admission plan will result in a desirable preparation in English.

Curriculum. During the past year the committee on curriculum of the Department has reorganized the basic subjects of the first two years, and we believe that its new plan, if adhered to and developed, will prove superior to any curriculum presented by the Department in recent years. Beginning with a basic course in English composition, the curriculum now includes three major options, concentrating (a) in literature and fine arts,

(b) in history, and (c) in scientific writing and thought. These three options lead directly into the field of concentration in the General Studies, available to students in the upper two years. It is now possible for the Technology student to have a coördinated program in the humanities from the second term of his freshman year through his senior year. The Committee feels that this is one of the most important developments at the Institute in recent years and one that definitely puts into effect the recommendations made two years ago.

The Committee feels (and so does the Department) that the ability to think clearly lies at the foundation of the power to write good English; that while the whole work of the Institute is a training in accurate thinking, such training can be and is supplemented by direct methods employed by the Department. The option labeled Scientific Writing and Thought, for example, has been designed to provide training in precise reasoning, and it is said to have produced a marked improvement in the power of expression of those students who have taken it.

Service Functions. The work of the Department extends beyond the formal subjects in English and history in the direction of counseling students in the selection of General Studies, in conferring with them on specific problems of oral and written expression, in providing guidance in many of their extracurricular activities, and in assisting the professional departments in maintaining high standards in the use of language. This important service work of the Department is helping to develop a better understanding in both Institute staff and student body of the contributions—in breadth of view, in intellectual resources, and in power of expression—which the Department can make to a complete engineering and scientific education.

It is suggested for consideration that the abilities of students to think clearly and to express themselves well will further be promoted and the importance of these abilities brought home to the staff and student body alike if professional courses would announce to their students that some senior theses are to be submitted to the Department for examination and possible rejection for defective English and composition. Already one professional course has adopted this procedure and is obtaining as a result a higher level of expression.

Instructors in the Department express an eagerness to consult with upper-class students and to aid them in the preparation of written material, in oral expression, in the writing of letters applying for positions, and in many other ways. The Committee commends these activities of the Department and hopes that, with the aid of the professional courses, they may be given wider scope.

Division of Humanities. Two years ago this Committee recommended that a committee be appointed to study the integration of the Institute's work in the humanities, and it is happy to note that not only was this committee appointed but that it has already made significant progress. In coöperation with the Committee on General Studies, it has critically reexamined the General Studies subjects and has organized them into four groups: History of Science and Thought; History of Civilization; Literature and Fine Arts; and Social Science—thus making it possible, in effect, for Tech-

nology students to have a minor in any one of these four fields. The Committee ventures to comment on these developments because it feels that they are so intimately related to the Department. It feels that the continued effort of the Committee on General Studies and the Committee on Humanities to strengthen the General Studies and further to coördinate them within the categories in which they are grouped is desirable and should be continued if the Institute is to graduate men who are articulate, well rounded, and familiar with the social responsibilities facing the scientist and engineer.

The Committee feels that the Division of Humanities can further be strengthened by the appointment of a director or by the creation of an administrative organization directly and specifically charged with control of all subjects, curricula, and work relating to the humanities — as distinguished from professional programs — at the Institute. We believe that such a director or such an organization could: (1) promote more respect on the part of students and staff for the Division of Humanities as an important part of the total educative forces of the Institute; (2) coördinate, consolidate, and make permanently effective the gains already achieved through the coöperative efforts of the Department of English and History, the Committee on Humanities, and the Committee on General Studies; (3) maintain a level of instruction and content in all subjects falling within the Division of Humanities comparable to that obtaining in professional subjects at the Institute; and (4) provide adequate counsel to students in their selection of programs of study in the humanities.

Now that the student has an opportunity to select a field of concentration in General Studies, the need for special counsel is more acute, and under existing conditions it is hardly practical to expect that registration officers in professional courses can perform this function. We understand that members of the Department have had an increasing number of students coming to them for advice in the selection of General Studies, and we feel that they will always play an important part in this work. They cannot, however, reach all of the students, and their work needs to be supplemented and carried further by a counselor representing all of the humanities.

In conclusion the Committee is happy to report that it was greatly impressed by the alertness, enthusiasm, and coördination of the Department's staff. Obviously the revised curriculum has contributed to this fine morale; the staff has confidence in the value of the subjects it is teaching and is responding enthusiastically to the challenge provided by some of the pioneering changes that have been made.

Major credit for the competence and spirit of the staff belongs to the Head of the Department. Under Professor Pearson's wise and stimulating leadership, the staff is exhibiting a disciplined zeal that carries it beyond mere performance of routine assignments. It is striving not only to teach English and history but to stimulate in the Technology student a new interest in the humanities and to direct him to that broad understanding of himself as an individual and of himself as a member of society which is the hallmark of the educated man.

The Homes of Tomorrow

The Housing Conference on Alumni Day at the Institute, June 7

NOTE: To the many people, not Alumni of the Institute, who have expressed a desire to attend this conference, the committee in charge extends a hearty welcome. They will understand, of course, that Alumni attending the day's program will be given prior rights on seats, but it is hoped to accommodate all who have an interest in this vital and fascinating subject.

THE conference, which begins at 10:00 A.M. in Room 10-250, will be preceded by a half-hour program of slides and motion pictures pertinent to the subject. The speakers on the program will be:

VANNEVAR BUSH, '16, Vice-president and Dean of Engineering, M.I.T., presiding and summing up at the end.

SIR RAYMOND UNWIN of London, England, world-famous architect and town planner, on

BETTER HOMES AND NEIGHBORHOODS FOR ALL

The Social and Economic Aspects of Shelter

JOHN ELY BURCHARD, '23, Vice-president of Bemis Industries, housing researcher, on

HOW BETTER HOMES WILL BE BUILT *The Question Mark of Prefabrication: New Materials, New Methods of Design*

ERNEST J. BOHN, Sometime President, National Association of Housing Officials, consultant on low-cost housing, on

GOVERNMENT INTERVENTION IN HOUSING

What Governmental Agencies Have Done and Might Do

ROBERT D. KOHN, distinguished New York architect, former Director, Housing Division of Public Works Administration, on

THE FUTURE OF HOUSING

Some Possible Ways Leading to Better Housing

This program, together with the extensive exhibits, offers Alumni an unparalleled opportunity to inform themselves about one of the major problems of today and bids fair to be one of the most fascinating alumni conferences ever held. The women will find it no less interesting than the men.

Plans for the other features of Alumni Day, including the great jamboree dinner at the Hotel Statler in the evening, are virtually complete. Over 1,200 Alumni have already indicated their hopes of coming, and many of their wives will come with them for the special ladies' program.

When you receive your final notice and application form this month, please return it promptly. You will not wish to miss the full program of information and entertainment.

Plan to hear about
THE HOMES OF TOMORROW

FAREWELL TO ROGERS

(Continued from page 287)

wisdom, since the freshmen bring so much in and the seniors carry so little away. No institution can wholly escape either the inflated newcomer or his later collapse, and certainly this school would fail of its main purpose did it not teach that the man of science must above all be modest. Yet it is reasonable to maintain that since each college generation has come here with a majority of its young men seeking the same goal that President Rogers sought, and permeated — in however less degree — with the spirit in which he lived and wrought, there exists, therefore, in this 50-year-old building a residuum of high endeavor which is the basis and is, indeed, the very substance of the "Spirit of Technology."

Today, as we take leave of the cradle of that spirit, we are confronted with the serious question: Has that Spirit of Technology — at once so intangible and so very real — has it the power, the vitality, the humility, to survive transplanting, not only to the new conditions and the new perplexities but also to the novel luxuries of the Charles River site? More than this, has it the inborn strength to do what all healthy, transplanted things should do — grow with an even sturdier and richer growth? That we *do* believe, from the bottom of our souls, that the Institute has this youthful vigor and this eternal promise, is proved by our coming together from every corner of America for these days of lively rejoicing and of solemn anointing, for the careless renewal of that human youth which can be ours never again, and for the serious consecration of that spiritual youth which is to be ours forever. . . .

Of the exceptional leadership that the Institute has enjoyed most of you are fully aware; for together we have watched, jealously, as was our right, proudly, as has been our privilege, the careers of our successive presidents. This is not the occasion upon which to refer, even indirectly, to what the Institute owes, in so many notable directions, to the work of Crafts, of Pritchett, of Noyes, and of Maclaurin. But the great dead are ours, enshrined in the highest niches of the temple of our gratitude. With us they will bear the Spirit of Technology, the very Ark of the Covenant, to the new temple which, in life, they foreplanned, over which, in death, they will stand unceasing guard. . . .

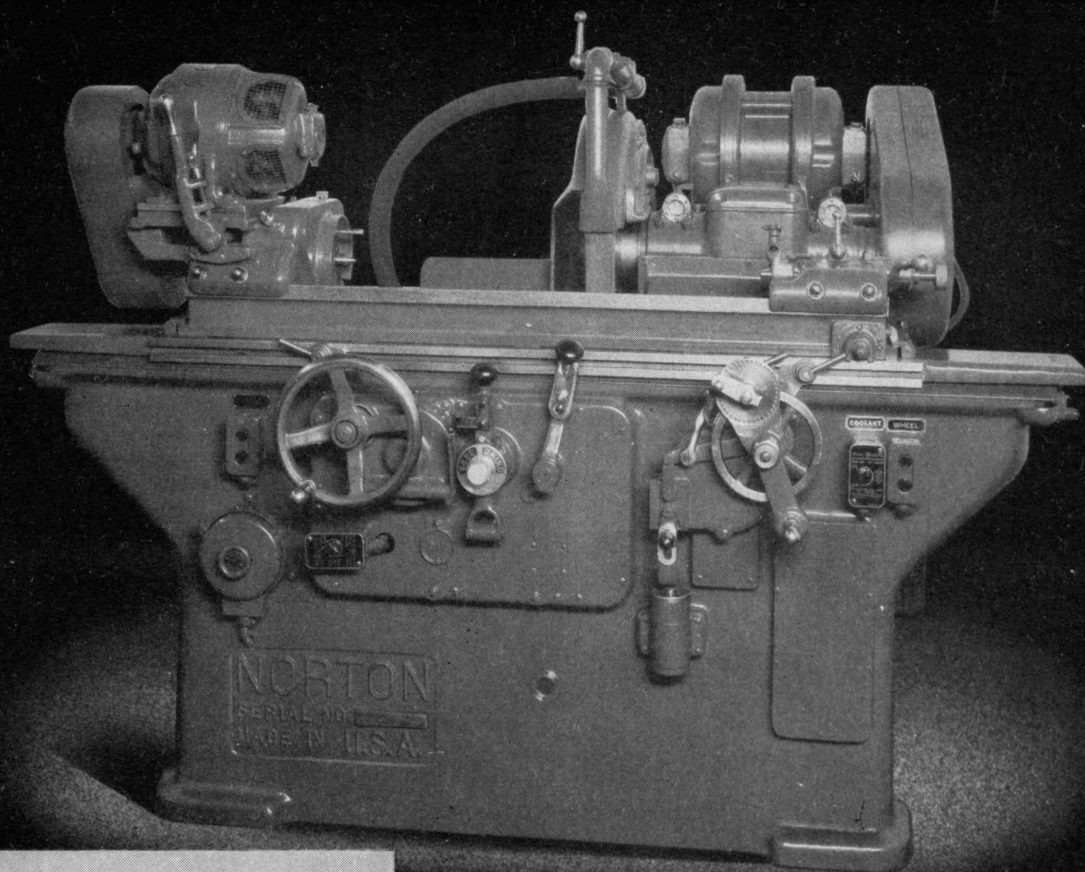
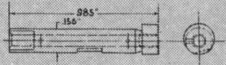
Of Walker, who came to the Institute in 1881 and who gave of himself to Technology with prodigal generosity for nearly 16 years, it is difficult for a devoted servant to speak in measured terms. Privileged to be in almost daily association with him for more than seven years, I saw him from almost every angle; and in every aspect he was every inch a man. A classicist by training, a soldier through brilliant experience, an economist by inheritance, a keen thinker and felicitous writer, he had, in addition, that sense of social duty which made him — to his own physical hurt — a potent force in the educational and civic life of his generation. Finding the Institute weak in resources, numbers, and prestige, he left it strong in all three; coming to an institution somewhat narrow in outlook, he left one broad and catholic; called to mold a great ideal into the stability of an accomplished fact, he gave to that service all the power

of his lucid thinking, his exceptional training, and his colossal self-devotion. In a very real sense he found the Institute of wood and left it of marble; and he left it, moreover, a free city of learning, with its people — that is to say, its Faculty and its Alumni — imbued to their very finger tips with his spirit of educational liberty. And when death called him from the thick of the day's work — a day crowded with service for school and city and state and nation — that solemn messenger took only the overtaxed body, for the great soul is doing potent service still, through the thousands of young men whom he inspired, through the hundreds of great causes that he quickened and helped.

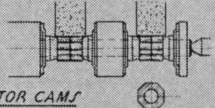
And, Rogers, first and greatest of a noble line of leaders, all that this, your building, stands for, finds its origin in your far-seeing brain. Seventy years ago, when pure science was feeble and applied science scarcely known, you foresaw and foretold this institution of today; and nearly 60 years ago, in your "Objects and Plan of an Institute of Technology," you laid down the educational charter that not only still governs us, but is pregnant with ever-renewed vitality. Greatest of four extraordinary brothers, all heralds of the modern day, it is difficult to determine whether education in general and the Institute of Technology in particular owe most to your trained and penetrating mind, your compelling will, your power of vivid oratory, or your incredible industry. No longer a young man when you undertook the creation of this institution, your body pathetically frail from overwork, you inspired practical men with the fire of your high idealism; you compelled legislatures by the magic of your eloquence, you shaped substantial methods out of seemingly nonexistent material, you brought together those of the most divergent thinking into one common devotion to your cause. You, childless, surrounded yourself with a world-wide family of devoted sons; you, an old man, understood the minds and hearts of the young; you, an impetuous Irishman from the South, found the way to the cold and cautious sympathies of this Puritan community. You did all this and much more, first, because of your remarkable personality; secondly, because you had as co-worker that paragon of women, your wife and your second self; and thirdly, because you were immanent and radiant with the spirit of Technology, the spirit that to the Institute is your everlasting legacy.

Like yourself, that spirit is compounded of an intellectual and moral honesty without which all science is a sham; of the industry that, measuring the possibilities of life, knows that the most eager working will leave the accomplished task miles below its vision of fulfillment; of the loyalty that, scorning to ask pay or honor for itself, finds much richer reward in the achievement of the cooperating group; of the spirit of service which recognizes that the only solid satisfactions in life come from work done for the common good.

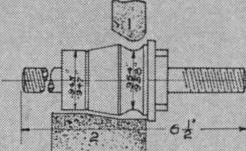
Whether the Institute of Technology gives its students this or that fund of information, whether it develops in them certain aptitudes, whether it provisions them with all needed formulas and technical practices, is of no avail whatever, if it does not, first and foremost, teach them that the man of science must be honest in everything, at all times effec- (Concluded on page 302)

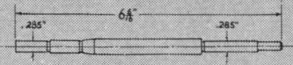
ARMATURE SHAFT *Electric Razor*
Finish ground in 6x18" semi-automatic
automatically sizing within .0003



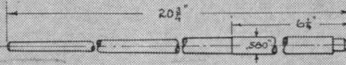
DISTRIBUTOR CAMS
4 cams mounted on arbor
and ground simultaneously with 2 grinding wheels
6x18" Type C semi-automatic with cam grinding
attachment



BICYCLE HUB
Ground in two operations using formed
wheels. 6x30" Type C semi-automatic with
special truing device



MOTOR ARMATURE SHAFT
Bearing ground to bearing finish and held to
.0003" for size.
6x18" Type C semi-automatic



TEXTILE SPINNING SPINDLE
Long taper finished in two operations
from black forging.
6x30" Type C Hydraulic Table Traverse

As a Grinder for Mass Production . . .
As a Grinder for Small Lots . . .

The Norton 6" TYPE C is Making a Real Record

They are mighty enthusiastic about the Norton 6" Type C in mass production plants where it grinds day after day on the same job—smoothly, steadily, without fuss or trouble.

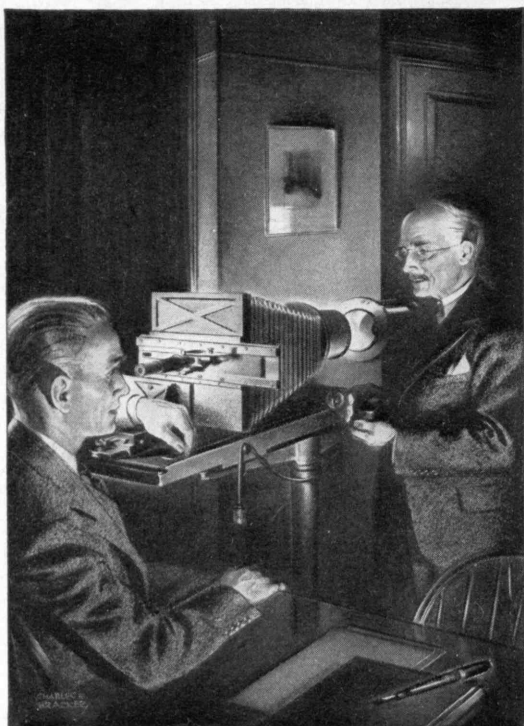
They are equally enthusiastic in plants doing miscellaneous work—25 pieces in one lot, 50 in another, sometimes one of a kind. They like its ease of operation, its quick adaptability.

In a large percentage of plants the performance of the first 6" Type C has brought repeat orders because it is fast and dependable—a real money maker.

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NORTON COMPANY, WORCESTER, MASS.

NORTON

THE TRAILER RECONSIDERED

(Continued from page 280)

RESEARCH

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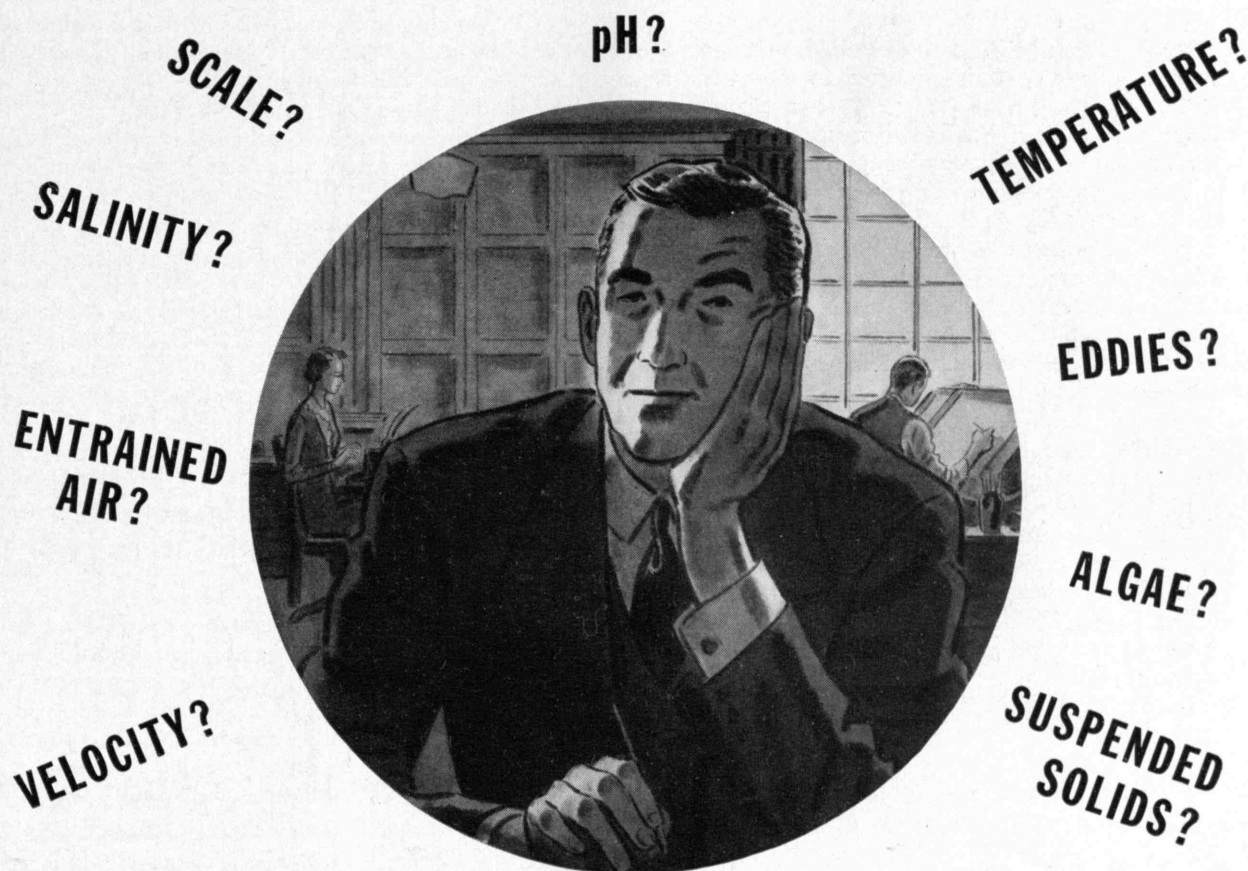
grow at a modest rate and to provide for many years a sober and decent business. But as Gargantua, trailer housing will give a good imitation of Mickey Mouse.

However, no serious student of housing can overlook the fact that trailers are going to influence our housing, perhaps tremendously. It is easy to think of at least six things which may well happen to our attitude toward housing and living as a result of the present and the expected growth of trailer living. Let us try to evaluate these, going from the least to the most important.

1. A nation that enjoys the out of doors, the gas-free out of doors, is likely to be a healthy nation. We are a nation of travelers, and there is definite evidence that we are beginning to seek the wide instead of the congested spaces when we travel. Many of us are not skilled campers and in the past, by our crass disregard for the cleanliness of nature, have been guilty of desecrating forest and mountain for those who were good campers or mountaineers. If our trailers are our own, we will be more likely to police them. There is nothing that need annoy the mountaineer, for example, in the sight of a neatly arranged row of trailers, neatly kept, on the shores of Jenny Lake, with every trailer owner enjoying the view of the Grand Teton. There seems to be no danger that a way will be devised to perch the trailer on the summit of that glorious pile. Similarly, the woods are large enough to permit quiet trailer colonies in their very depths without taking away the privilege of loneliness from the man who wants to be alone. Trailers may be a definite social asset in this respect.

2. Trailer living as practiced today is highly gregarious. We sleep almost in our neighbor's refrigerator. We know what he has had for breakfast and which network he likes to tune in of a Friday night. He undoubtedly sees us shaving and dressing and undressing. Those of us who would rather keep out of other people's hair won't be in trailers anyway, but those of us who like such shoulder rubbing will inevitably develop better manners and better morals. There is nothing like having seen all to eliminate that curiosity which leads both to bad manners and to Puritan morality.

3. As a solution of the problem of the elderly parent, the trailer may well be highly important. This problem is one of the most tragic of contemporary society. Despite all the hope we constantly hold out to each other, the fact is that few families even in America ever lift themselves by their economic bootstraps into independence. The conventional middle-class cycle is something like this: A young man is housed, fed, and clothed; he is educated, at high expense to his parents (usually at the period of the parent's highest earning power), to an age which gets greater with the increasing demands of specialized education, so that they are asked to support him for a longer period than used to be the case when he went to the fields at 18. At 25 or so he goes to work and becomes reasonably self-supporting. Between then and 30 he gets married to a girl who has had similar expenditures made on her. The joint parents give the young couple a good start. Then the parents begin to lose earning power and health and finally land on the children as partial or full charges. These children take care of them until their *(Concluded on page 300)*



What tube shall I specify to meet these conditions?

There are so many things to consider in specifying condenser tubes. Is the cooling water acid? Or alkaline? Will it precipitate lime or magnesium scale? Does it carry suspended solids? What is its pH? Its velocity? How are the tubes set? Will there be eddies?

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THE TRAILER RECONSIDERED

(Concluded from page 298)

death, meanwhile educating their own children in accordance with the same cycle, to go broke in their turn at life's close. By "going broke" I am of course speaking relatively, and the degree may vary considerably. The fact is that modern living requires a great deal of this doubling up of generations, which is happy for neither. The trailer seems perhaps to offer the first solution for numbers of the elders who would like their independence, who must have it cheaply, who need the warmer climate in which their children can usually not earn so good a living as they might in the North. It is possible to imagine a very considerable change in this situation because of trailer development, and a change for the better. Such a change, if it develops, will of course condition the plan of the permanent house as well.

4. Although I have spoken somewhat slightly of the compactness of the trailer, it may be an asset as well as a liability. It is unthinkable that people who have lived in trailers long and found them good will tolerate the usual sloppy planning of their small permanent home. The trailer builder has to cultivate efficiency, more perhaps than we want in the house. But this cultivation of efficiency must inevitably show the way toward similar study in the permanent house, and this study may be demanded not alone by those who have lived in trailers but by those who have only seen them.

5. The trailer is about the only housing of any kind which is in mass production today, and profitably at that. Properly speaking, the method of trailer production should probably not be called mass production but rather mass assembly since it really employs the assembly-line principle of the motor industry rather than what is ordinarily regarded as mass production. The trailer maker is learning technique. It is quite naturally to be expected that trailers will get bigger and give more for the money as this technique improves. Unless some scheme such as that of Stout prevails, the limits of bigness will be imposed by highway regulations which certainly will rather rigidly control their width, at least. But this same technique can quite conceivably be applied to building rooms of houses. Though it has been fashionable for most of us to laugh at the house to be delivered on wheels, the trailer must make us stop to wonder whether we may not see rooms on wheels, wheels to be removed when the rooms reach the site, rooms which may be joined to other rooms to form a pretty good and quite certainly a pretty cheap house. It does not quite qualify me for the Prophets' Club when I state that this is a development carefully to be watched or when I suggest that some trailer maker who has the foresight to visualize the saturation point of his present industry might profitably begin research on this question during the days of his fertility.

6. Finally, there is another way in which present methods of trailer manufacture might influence subsequent developments in prefabricated houses even though the principle of room manufacture should not develop. It is conceivable that some intelligent investigator might discover that parts now made for trailers could be used to advantage in the building of permanent structures.

Since such parts are already made in large-scale production for trailers, their cost for house assembly would benefit by such production at the outset. I am thinking now of house assembly of prefabricated parts on the site rather than assembly of rooms in the factory, as suggested in the preceding paragraph. The test of the validity of this hypothesis is whether or not trailer manufacturers are actually inclosing *space* at a cheap price today. In other words, were a trailer to be shorn of the features built into it purely because of the requirements of mobility and shorn of all its built-in equipment except lighting, would the cost of the balance, divided by the cubic feet of space inclosed, give a low cubic-foot cost? Personally, I rather doubt it. The motor body is, of course, subject to a very high degree of mass production. Since the walls of this body do not have insulation and many other features which seem to be required in permanent housing, a comparison of cubic-foot costs of the motor industry with those of housing may not be so promising as would appear. It might be a worth-while research to ask the trailer manufacturer to segregate his cost of inclosing space from his other costs.

Out of these possibilities emerge some further possibilities. Style of trailer housing, if it arrives, will pretty clearly be conditioned by the necessity for transport at some time in its life; this suggests not necessarily streamlining but certainly rounded corners and generally the elimination of angles. Assembled trailer houses of the type considered would probably lead to open planning (patio) with a tendency to eliminate the hall, almost certain elimination of the second story, very small working rooms (sleeping and cooking), and perhaps but one social room (living and dining). Basements would probably disappear in favor of a trailer unit as a heater room. Built-in equipment would almost wholly replace furniture. Orientation for sunshine would be readily obtainable, but whether or not supplied would depend on education of the public to its desirability. The structure would obviously be quite different, relying for strength on laminae rather than on vertical frames; whether these laminae would be of wood or of metal cannot be foreseen. That they would be of brick or of concrete seems impossible. Plastics, plywoods, metals, all well adapted to the machine, would certainly play a larger part, while plaster and such materials would disappear. Insulation would have to be of types suitable to thin walls—radiant foils, if time shows their merits to be permanent, higher-grade insulators of the conduction type if not. Insulation against sound transmission would be almost impossible of attainment with the type of wall that ought to be built, but some assistance might be given by provision of absorbents in rooms that were usually noisy. Fenestration would be quite different, being of the car-window type. Built-in lighting would almost certainly be universal. Standardized built-in mechanical units to supply cooking and bathing facilities would surely be used.

Do you like the prospect? Well, stranger things have happened. The clearest implication of the trailer is that in this growing and increasingly integrated new industry there is the strongest present potential for the prefabricated house of the future.

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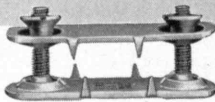
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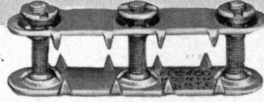
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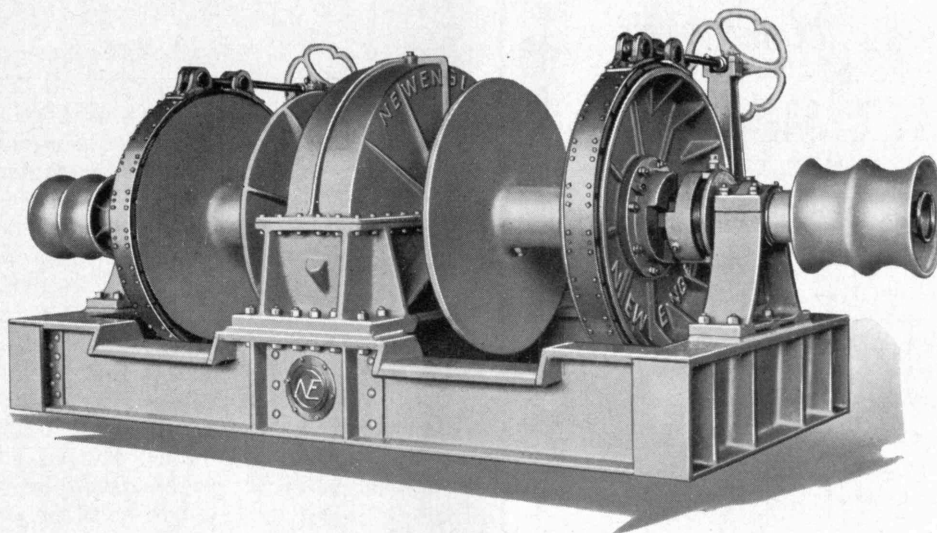
(Concluded from page 296)

tively industrious, a seeker of the public rather than of his private good, a server from his first day to his last of that civilization which has endowed him with all the accumulated treasures of the centuries, and which demands, be it small or be it large, his social and civic contribution in return.

Almost exactly 34 years ago, William Rogers, standing on this platform and handing on to Francis Walker the brilliant torch of learning, of industry, of service, that he himself had kindled, fell dead, his soul too great for the frail house of his poor body. That splendid soul, thus released, is here today, is the abiding genius of this building that we love, is the essential thing which we are taking with us to that stately shrine across the Charles, fit shrine at last for such a rich possession.

But woe to us, if, having made this new shrine and having transferred to it that spirit of Rogers, we forget what it is that this Rogers Building means. Into it have been builded the multiform labors of hundreds of great leaders and thousands of their neophytes, all seeking the one enduring thing in life, the truth; all scorning to journey by any road other than that of hard work; all ambitious, but for the general good; all fired with the desire to contribute something toward the bettering of human conditions and the uplifting of the world; all striving for the greatest of human prizes, character. But character does not come as the result of formal lectures, of the piling up of facts, or of the acquisition of complicated formulas. It comes through the contact, under favoring conditions, of trained mind with eager mind, of formed individualities with those forming; through the interpretation by men, not only expert in science, but reverent toward life, of the master books, the major discoveries, the basic verities of human experience. To multiply lecture rooms, to elaborate apparatus, to magnify material facilities on the other side of the Charles, without at the same time extending and vivifying the influences which make for manhood, for social understanding, for reverence, which make — in short — for character, would be indeed to leave behind not only this Rogers Building itself, but all that it has stood for throughout these 50 years.

This battered and outgrown homestead to which we are bidding sober and affectionate farewell may well be likened to the weary body which, a generation ago, the soul of William Barton Rogers laid down upon this consecrated platform. Whatever may become of this architectural shell, never shall we forget its intrinsic beauty, its warm touch of companionship, its stimulus to our hearts and minds. But the soul of it, the legacy of Rogers and Runkle and Walker and all the rest, the Spirit of Technology, we take with us, not in memory but in actuality; and we believe, yes, we know, that in conveying it across the Charles we are leading it to opportunities, to achievements, to new affections, and to new traditions far greater, far richer, far more full of promise than even those which we today so proudly and so gratefully commemorate.



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THE TREND OF AFFAIRS

(Concluded from page 277)

This handkerchief trick is an illustration of the adsorption principle that has been so useful in creating low temperatures. Charcoal, for example, adsorbs huge quantities of gas. Professor Frederick G. Keyes of the Institute has taken advantage of the heat effect which accompanies the removal of the adsorbed gas, that is, of the heat of desorption, in the design and construction of his ingenious apparatus for the liquefaction of hydrogen and helium. These gases require extremely low temperatures for their liquefaction, much lower than that of liquid air. Hydrogen, for example, is adsorbed on charcoal, and the vessel which contains the charcoal is cooled with liquid air. The hydrogen, pumped from the charcoal, will be at a temperature below the temperature of liquid air. One portion of the cold gas is again adsorbed on charcoal, another is used for cooling the charcoal during the adsorption. The gas again desorbed from the charcoal is at a temperature lower still. And so on, until one part of all the hydrogen used has been cooled to the point where it is liquid, while the rest of it has found service in removing the heat produced by the adsorption on the charcoal. The heat of desorption of hydrogen from charcoal is about eight times as great as the latent heat of evaporation of the same weight of liquid hydrogen. In the case of helium, the heat effect is 20 or 30 times as great.

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THE WORLD OF SCIENCE

(Concluded from page 284)

communication, remarkably detailed, is told in an altogether interesting manner." — *Scientific Book Club Review*.

HEARD, GERALD. *Exploring the stratosphere*. Thomas Nelson and Sons, Ltd., 1936.

"A layman's book, telling how man has learned some of the secrets of the stratosphere and of what value this information may be to us." — *New York Public Library New Technical Books*.

HOLMES, H. N. *Out of the test tube*. Long and Smith, 1934.

"A successful effort to link up chemistry with industry, economics, the arts, transportation, family life, health, national defense, and world affairs in general." — *Boston Evening Transcript*.

HUXLEY, J. S., and E. N. DA C. ANDRADE. *Simple science*. Harper, 1935.

HUXLEY, J. S., and E. N. DA C. ANDRADE. *More simple science*. Harper, 1936.

Popular accounts of the history of man's progress in science by two leading English scientists.

JAFFE, BERNARD. *Outposts of science: a journey to the workshops of our leading men of research*. Simon and Schuster, 1935.

"Records the latest of scientific research and presents brief vignettes of the personalities back of the work." — *Saturday Review of Literature*.

KARLSON, PAUL. *The world around us; a modern guide to physics*. Simon and Schuster, 1936.

"For the youth of inquiring mind or the business man who wants to know what is behind the headlined science of the morning paper." — *Scientific Book Club Review*.

LEONARD, J. N. *Tools of tomorrow*. Viking Press, 1935.

"Not only is this the story of tools of tomorrow, of the inventions, techniques, and resources which we know about but do not use in large quantities; it is also the history of power, metals, and machines, their past and present compared with what their future may be." — *Scientific Book Club Review*.

VAN METRE, T. W. *Trains, tracks and travel*. Fourth edition. Simmons-Boardman, 1936.

"Of the popular type and richly illustrated. Includes information concerning streamline trains." — *New York Public Library New Technical Books*.

WILLIAMS, C. C. *Building an engineering career*. McGraw-Hill, 1934.

Covers such subjects as the character of the profession, its ethics and social relationships, historical background, and curriculum and methods of study.

YATES, R. F. *The art of inventing and what to invent*. Appleton-Century, 1935.

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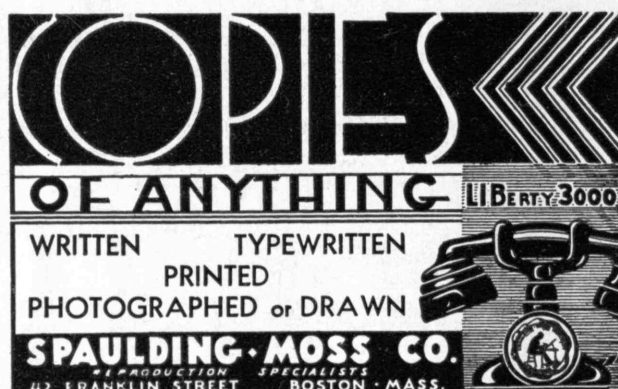
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(Concluded from page 283)

work that is being done by the small colleges in the West and South, stimulated by this gift of five hundred dollars a year, is incalculable.

I would like to tell you of an insignificant gift that does excellent work. I live in Philadelphia, and near by is a relatively small Quaker institution with a very fine reputation. I refer to Swarthmore College. Someone of modest means gave fifty dollars a year to the president to be awarded by him as a prize to the graduating student who had made a collection of books, of any edition whatever, on a chosen subject. Unfortunately, the man who conceived this idea and who intended to make the gift perpetual died without having provided the means for carrying it on. The matter was brought to my attention, and as only a thousand dollars was required, I gave that sum, which produces approximately fifty dollars a year, and the gift continues. I do not believe that fifty dollars can be better spent than among the students of a small institution or even a great institution — and there might be many such gifts — to be awarded to the student who makes in his graduating year, if you please, a little library of scientific or other books. I was surprised to discover that last year a young woman received this prize and her collection was composed entirely of books upon the subject of aeronautics.

The public speaker is in the position of an aviator. He is fairly safe when he is in the air. His difficulty is to find landing facilities. The preferred speaker ends with a note of optimism; I am not such a one. I would point out, respectfully, that our technological life is perhaps being developed at the expense of our spiritual and political life. I think that is the shortcoming of our day and generation. I wish that I could see some effort being made in the direction of overcoming the sordidness of our life, of our spiritual and particularly of our political life. I speak as a Philadelphian and as a Pennsylvanian, where it is especially needed. I leave this problem with the mountain peaks that I see among you. (Applause)

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Elected or Appointed

¶ HARRY P. CHARLESWORTH '05, assistant chief engineer, American Telephone and Telegraph Company, to the board of directors of the American Standards Association on March 3.

¶ ARTHUR CAMPBELL '12 to the position of building commissioner of the city of Newton, Mass., March 15.

¶ EDWIN S. BURDELL '20, Associate Professor of Sociology, to the advisory staff of the Federal Housing Administration, February 17.

¶ MILES N. CLAIR '23, Vice-president of the Thompson and Lichtner Company, Inc., to the position of director of the American Concrete Institute, February 27.

¶ J. EDGAR PEW '26, Vice-president, Sun Oil Company, to the board of directors of the American Standards Association on March 3.

¶ JOHN C. TURNBULL '34 to full membership in the Brown University chapter of Sigma Xi, March 19.

¶ ARTHUR O. WILLIAMS, JR., '34, to full membership in the Brown University chapter of Sigma Xi, March 19.

¶ GEORGE B. WATERHOUSE, Professor of Metallurgy, to the board of directors of Dominion Steel and Coal Corporation and Dominion Coal Company, in March.

Boston Society of Civil Engineers

¶ On March 17 the oldest engineering society in the United States held its 89th annual meeting under the guidance of President HAROLD K. BARROWS '95, Professor of Hydraulic Engineering. Among the awards made was a special prize, consisting of books, presented to JOHN B. BABCOCK, 3d, '10, Professor of Railway Engineering, for his paper on "The Boston Society of Civil Engineers and Its Founder Members," presented as the presidential address last year and published in the society's *Journal*. ALBERT HAERTLEIN '18, Associate Professor of Civil Engineering, Harvard University, was awarded the Desmond FitzGerald Medal for his paper on "The Design of Statically Indeterminate Trusses," presented before the designers' section of the society on January 8, 1936, and published in the *Journal*, April, 1936.

Among the officers elected for the coming year were: GORDON M. FAIR

'16, Professor of Sanitary Engineering at Harvard, as vice-president; CHARLES R. MAIN '09 of Charles T. Main, Inc., as treasurer; CARROLL A. FARWELL '06 of Fay, Spofford and Thorndike, as director.

Lectures

¶ By BERNARD S. COLEMAN '19, Secretary, Tuberculosis Committee, New York Tuberculosis and Health Association, "Two Million Days' Hospital Care," over Station WNYC on February 11.

¶ By LOUIS J. O'MALLEY '28, "The Failure of Communism in Russia," sponsored by the Knights of Columbus, Fall River, Mass., March 14.

¶ By ROBERT W. VOSE '31 and ARTHUR R. ANDERSON '35, jointly, "Photoelasticity," before the Norwich (Conn.) section, American Society of Mechanical Engineers, March 29.

Written

¶ By ERNEST V. WRIGHT '89 a 50,110-word novel without using the letter "e."

¶ By CHARLES M. SPOFFORD '93 a book, "The Theory of Continuous Structures and Arches," McGraw-Hill Book Company, Inc.

¶ By ELLIS F. LAWRENCE '01 a paper, "The Architectural School; How Can It Prepare Men for Actual Practice," *Pencil Points*, January.

¶ By J. NEWELL STEPHENSON '09 a book, "The Manufacture of Pulp and Paper," Volume III, McGraw-Hill Book Company, Inc.

¶ By PERCY BUGBEE '20 a paper, "Fires are Your Fault," *Nation's Business*, February.

¶ By D. C. JACKSON, JR., '21 a note on survey courses, "Across the Director's Table," *Lewis Alumni News*, February.

¶ By CHARLES T. JACKSON '23 an article, "In Defense of Coöperatives," *The Atlantic Monthly*, March.

¶ By DONALD G. FINK '33, GORDON K. BURNS '34, JOHN D. HOSSFELD '35, and HARRY E. ESSLEY, JR., '36, a report, "Tau Beta Pi Engineering Education Survey," *The Bent of Tau Beta Pi*, July.

¶ By DUGALD C. JACKSON, Emeritus, a paper, "Industrial and Cultural Japan," *Electrical Engineering*, January.

¶ By WILLIAM H. TIMBIE, Staff, a book, "Elements of Electricity," Third Edition, John Wiley and Sons, Inc.

DEATHS

* Mentioned in class notes.

¶ HENRY W. KINGSBURY '83, September 16.

¶ CHARLES H. BARTLETT '85, February 28. Attorney at law and for many years prominent in legal and engineering work in Boston and New York, Mr. Bartlett was for several years connected with the Boston Transit Commission and was in charge of reconstruction of shops and machinery at the Charlestown Navy Yard.

¶ FRED A. HALL '85, March 17.

¶ GRANGER WHITNEY '87, March 18.*

¶ WALTER H. UNDERWOOD '88, date not known.

¶ WILLIAM BEAMAN '89, March 1.

¶ HENRY E. MASON '92, January 13.

¶ FRANK W. ALEXANDER '93, October 16.*

¶ ALBERT MARSHALL '93, March 6.*

¶ JOHN W. TARBOX '94, date not known.

¶ ARTHUR BIXBY '95, February 20.

¶ THOMPSON CRANE '96, March 25.*

¶ J. MILTON HOWE '96, March 22.

¶ JAMES W. KILLAM '97, March 15.

¶ SARAH E. MILLER '97, March 23.

¶ LEROY D. PEAVEY '98, March 25.

For nearly 30 years Mr. Peavey was a member of Babson's Statistical Organization in Wellesley Hills, Mass., and was made its vice-president and general manager in 1910. He became president upon the retirement of his classmate, Roger Babson '98, its founder.

¶ LOUIS W. SHUMAKER '99, November 27.

¶ DORA WILLIAMS '03, February 22.

¶ EVARTS W. CHARLES '04, March 15.

¶ HARRY F. STIX '04, January 26.

¶ HAROLD CRANE '05, February 8.

¶ FRANCIS B. RILEY '05, February 26.*

¶ RUSSELL D. WELLS '10, April 7.

¶ WALTER P. HOUSTON '14, March 30.

¶ WILLIAM A. GRAY, JR., '17, March 5.*

¶ GERALD I. CARPER '23, March 10.*

¶ VYACHESLAV PETROVSKY '29, June.

COMPARATIVE SCHOLASTIC STANDINGS OF FRATERNITY AND DORMITORY UNDERGRADUATE GROUPS AT M.I.T.
(as of end of First Term, 1936-37)

<i>Comparative Standing (based on February '37 ratings)</i>	<i>Increase over June '36</i>	<i>Increase over Feb. '36</i>
Fraternity Seniors.....	3.32	*0.21
Dormitory Seniors.....	3.45	*0.12
Fraternity Juniors.....	2.99	*0.20
Dormitory Juniors.....	3.15	*0.13
Fraternity Sophomores.....	3.15	0.09
Dormitory Sophomores.....	3.21	0.04
Fraternity Freshmen.....	2.98	*0.23
Dormitory Freshmen.....	3.06	*0.15
General Average..... (Fraternity)	3.09	*0.16
General Average..... (Dormitory)	3.21	*0.09

FRATERNITY SCHOLASTIC STANDINGS

<i>Comparative Standing of 24 Chapters (based on February '37 ratings)</i>	<i>Increase over June '36</i>	<i>Increase over Feb. '36</i>	<i>Comparative Standing of 24 Chapters over previous five-year period</i>	<i>Comparative Standing of Freshmen of 24 Chapters</i>	<i>Rating Feb. '37</i>	<i>Comparison with Chapter Rating</i>
1. Phi Mu Delta.....	3.33	0.29	1. Phi Beta Delta	1. Phi Kappa Sigma.....	3.69	+0.423
2. Theta Delta Chi.....	3.27	*0.30	2. Chi Phi	2. Phi Gamma Delta.....	3.61	+0.38
3. Phi Kappa Sigma.....	3.267	0.078	3. Beta Theta Pi	3. Delta Upsilon.....	3.44	+0.34
4. Delta Tau Delta.....	3.244	*0.001	4. Theta Delta Chi	4. Delta Psi.....	3.28	+0.10
5. Phi Gamma Delta.....	3.23	0.12	5. Kappa Sigma	5. Delta Tau Delta.....	3.27	+0.03
6. Sigma Chi.....	3.21	0.175	6. Phi Mu Delta	6. Sigma Chi.....	3.24	+0.03
7. Delta Psi.....	3.18	*0.27	7. Phi Delta Theta	7. Sigma Nu.....	3.13	+0.063
8. Beta Theta Pi.....	3.17	*0.17	8. Phi Kappa Sigma	8. Sigma Alpha Mu.....	3.09	+0.016
GENERAL AVERAGE ALL UNDERGRADUATES.....	3.16	*0.12				
9. Phi Delta Theta.....	3.16	*0.05	9. Phi Gamma Delta	9. Phi Delta Theta.....	3.07	-0.09
10. Delta Upsilon.....	3.10	*0.148	10. Delta Upsilon	10. Phi Mu Delta.....	3.03	-0.30
				GENERAL AVERAGE ALL FRESHMEN.....	3.00	
11. Phi Beta Delta.....	3.096	*0.294	11. Sigma Alpha Epsilon	11. Phi Beta Delta.....	2.99	-0.106
AVERAGE ALL FRATERNITY MEN.....	3.09	*0.16		GENERAL AVERAGE FRATERNITY FRESHMEN.....	2.98	
12. Phi Sigma Kappa.....	3.09	*0.08	12. Delta Tau Delta	12. Phi Beta Epsilon.....	2.95	-0.10
13. Sigma Alpha Mu.....	3.074	*0.286	13. Phi Sigma Kappa	13. Theta Chi.....	2.85	-0.16
14. Sigma Nu.....	3.067	*0.233	14. Sigma Chi	14. Beta Theta Pi.....	2.84	-0.33
15. Sigma Alpha Epsilon.....	3.065	*0.425	15. Delta Psi	15. Theta Delta Chi.....	2.78	-0.49
16. Phi Beta Epsilon.....	3.05	*0.56	16. Sigma Alpha Mu	16. Phi Sigma Kappa.....	2.73	-0.36
17. Theta Chi.....	3.01	0.33	17. Sigma Nu	17. Sigma Alpha Epsilon.....	2.68	-0.385
18. Lambda Chi Alpha.....	2.99	*0.198	18. Phi Beta Epsilon	18. Lambda Chi Alpha.....	2.67	-0.32
19. Delta Kappa Epsilon.....	2.98	*0.185	19. Alpha Tau Omega	19. Delta Kappa Epsilon.....	2.63	-0.35
20. Chi Phi.....	2.96	*0.64	20. Delta Kappa Epsilon	20. Kappa Sigma.....	2.56	-0.35
21. Kappa Sigma.....	2.91	*0.38	21. Lambda Chi Alpha	21. Alpha Tau Omega.....	2.47	-0.41
22. Theta Xi.....	2.90	*0.299	22. Theta Xi	22. Theta Xi.....	2.453	-0.447
23. Alpha Tau Omega.....	2.88	*0.318	23. Theta Chi	23. Chi Phi.....	2.45	-0.51
24. Phi Kappa.....	2.56	*0.40	24. Phi Kappa	24. Phi Kappa.....	2.00	-0.56

* Decrease

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Atlanta Alumni Association of the M.I.T.

The 26th annual formal banquet of the Association was held at the Atlanta Athletic Club on the night of Friday, March 5, with 21 members and guests present. Following an excellent dinner, Past President Richard W. Smith '21 called upon everyone present to rise, give his past history, and submit to any questions by the Club. The results were in some cases startling. At the election of officers that followed, Hibbard S. Busby '14, educational director of the CCC camps of the 4th Corps Area, was elected president; Lawrie H. Turner '99 of the J. G. Dodson Laboratories was elected secretary-treasurer; Percy H. Thomas '93, who has recently been transferred to the Atlanta regional office of the Federal Power Commission, was elected sergeant-at-arms.

Music for dancing was furnished by Graham Jackson, colored exponent of rhythm, and several square dances under the direction of Charles A. Smith '99 were enjoyed. The following members of the Association were present: Arthur K. Adams '13, Hibbard S. Busby '14, Harold C. McLaughlin '18, Thomas E. Moodie '24, Samuel H. Reynolds '22, William J. Sayward '01, Charles A. Smith '99, Richard W. Smith '21, Percy H. Thomas '93, and Lawrie H. Turner '99. — LAWRIE H. TURNER '99, *Secretary*, J. G. Dodson Laboratories, 611 Forest Avenue, Atlanta, Ga.

Detroit Technology Association

The Intercollegiate Alumni Club was the gathering place for Detroit Alumni on March 16. The speaker at the dinner meeting was Jay C. Newman, special agent in charge of the Federal Bureau of Investigation in Detroit. Mr. Newman spoke on the work of this well-known government agency, and his audience was much interested. — JOHN E. LONGYEAR '26, *Secretary*, 2000 Second Avenue, Detroit, Mich.

Technology Club of South Florida

Since printing and mailing the roster we have learned of other former M.I.T. students in south Florida. It is a pleasure to introduce four to you now: E. A. West, a newcomer to Miami as vice-president of Florida Power and Light Company, was a special student in 1909. We hope Mr. West will take an active part in the Club. W. A. Boland '36 has something to do with the business of flying, down at Pan American. His address is Post Office Box 4591, Coral Gables. Charles S. Symonds '35, with offices at 431 West 41st Street,

Miami Beach, has been introduced to us by Drury '35. Perhaps there are more Institute architects to be heard from. Carl Orleman '31 was listed in the 1935 Institute Directory, but for some unknown reason we missed his name. He lives at 9600 North Miami Avenue, Miami. We regret we missed inviting him to our first meeting.

We have written Charles E. Locke '96, Secretary of the Alumni Association back at school, the full story of our organization and he has helped with many suggestions. From him we learn that the Club was formally recognized at a meeting of the Alumni Council on January 25. Another step was taken in the designation of Horatio L. Bond '23 of the National Fire Protection Association, 60 Batterymarch, Boston, as our club representative in Boston. We are grateful to Mr. Bond for accepting our request to represent us at the Boston meetings of the Council.

Harvey M. Mansfield '83, President of the Technology Club of Central Florida at Tampa, has written us an encouraging letter, welcoming us to the family of Technology clubs. Horatio Newton Parker '94, President of the Technology Club of Florida at Jacksonville, also wrote us his best wishes. Professor Locke has given formal recognition to the territorial claims of the Club as follows: Dade, Broward, Palm Beach, Martin, St. Lucie, Monroe, Collier, and Indian River counties. This is our range.

Our Vice-president, B. Howard Brown '30, was recently honored by the appointment of state representative of the National Youth Administration. Since his work now carries him over the state, we will have to appoint him state representative-at-large or state scout.

On March 22 a very interesting meeting was held with Eugene O'Brien, editor of *Southern Power Journal* of Atlanta, as our guest speaker. Because of the interest of this meeting for the engineering world in general we were glad to have as our guests all other engineers who wished to attend. — CLARENCE P. THAYER '23, *Secretary*, 1760 Northwest 41st Street, Miami, Fla.

Technology Club of Milwaukee

On Thursday, March 4, at the City Club, our Club held a dinner meeting at which Stewart Scrimshaw, professor of economics at Marquette University, spoke on "Labor Relations." Professor Scrimshaw is undoubtedly one of the country's leading men in the labor relations field and it was a great privilege to hear him. Those present at this meeting were: John F. H. Douglas '05, Ralph E. Boeck '28, James L. Suydam '26, Melvin A. Perkins '24, Bruno H. Werra '32, G. Allan Creighton '35, Julius W. Werra '22,

Erling S. Mathiesen '29, Robert M. Osborn '36, Allen C. Stephens '36, Arthur L. Sarvis '36, Mitchell Mackie '05, Maurice D. James '27, Lemuel D. Smith '06.

At our previous meeting in November, also at the City Club, we enjoyed an interesting talk on "Infrared Photography," by Leo Massopust. — FRED A. MEYER '35, *Secretary*, Sales Department, Cutler Hammer, Inc., 12th Street and St. Paul Avenue, Milwaukee, Wis.

M.I.T. Club of Northern New Jersey

The Club was honored by the presence of Professor B. Alden Thresher '20, Director of Admissions of the Institute, who attended a special dinner meeting of about 25 of the regional scholarship chairmen and the Club's officers at the Newark Athletic Club on the evening of March 15. Winfield I. McNeill '17, President of the Club and Honorary Secretary for Newark, presided and led the discussion of the work of contacting and interviewing prospective students for Technology and preparing data for the regional and freshman competitive scholarship awards.

Professor Thresher outlined the existing situation with respect to the Admissions Office and the plan of selective admission under the new system of stabilized enrollment. Following his talk, he answered many specific questions from the group. Joseph P. Maxfield '10, a member of the Club's advisory and scholarship committees, explained in detail the procedure which has been adopted for recording data for scholarship purposes and also discussed the remainder of the program which will be followed through to the completion of awards.

It is planned to maintain the personnel of the regional chairmen group intact regardless of Club administration changes and to obtain close cooperation through a representative group of the scholarship organization which will also serve on the Club's executive committee. — CAROLE A. CLARKE '21, *Secretary*, 10 University Avenue, Chatham, N. J. FREEMAN B. HUDSON, JR., '34, *Assistant Secretary*, Colgate-Palmolive Peet Company, 105 Hudson Street, Jersey City, N. J.

Technology Club of Rochester

On Saturday, January 30, the annual alumni prom was held in the College Room of the Rochester University Club. Three long tables, with decorations of red Kodapak streamers and silver flowers, were arranged for the Alumni and their guests. Long red tapers cast a soft glow over the entire group as they enjoyed the delicious dinner. Following the dinner, dancing was the mode, to the tunes of Darrell Gifford's orchestra.

At one table were Andrew Langdon '22, President of the Club, and Mrs. Langdon, the latter in gray lace with navy trim; Gerould T. Lane '13 and Mrs. Lane, who was in a gown of deep red satin; William W. Vicinus '23, accompanied by Mrs. Vicinus, who wore red satin; Frederick J. Hopkinson '20 and Mrs. Hopkinson, the latter wearing a frock of coral crepe with navy trim.

Another group included Roger Brookman '35, escorting Miss Marjorie Bettys, who wore red velvet; Robert E. Smith '33, with Mrs. Smith; Alexander Hamilton '35, whose dinner partner was Miss Marian Ogilvie in a dinner dress of black net with turquoise trim; Oliver L. Angevine, Jr., '36, with Miss Helen Berman, who wore a gown of black satin.

Miss Jean Ancona, in white satin, was escorted by Pattee Evanson. Richard S. Morse '33 attended with Mrs. Morse, who was gowned in orchid satin. Miss Alice Howell, escorted by Edson Snow '36, wore white satin. Miss Betty Brookman, who was with Richard Rosell, chose white crepe for the occasion. Miss Louella Marsh was with David Babcock '33, and Miss Eleanor Hill, who was escorted by Philip Kron '34, Secretary of the Club, wore a dinner dress of pink taffeta. Mrs. Stanley Wells, who attended with Mr. Wells '30, was gowned in black. Sitting near them were Richard Wilson '30 and Mrs. Wilson, the latter outstanding in a chiffon gown of smoke gray with a floor-length cape of the same material and a cardinal-red velvet belt.

Mrs. Leon McGrady, wearing a black crepe frock with black paillette trim, was dancing with Mr. McGrady '17. Also present were George Grant '36 and Mrs. Grant, the latter in a dinner dress of black net with accents of red. Chatting together between courses were Emery M. Low '29, Mrs. Low, Miss Helen Bronson, and Glenn Goodhand '31. Both Mrs. Low and Miss Bronson favored black, as did Miss Elizabeth Hayes who was escorted by Harold Ahnfeldt '33.

On Thursday, February 25, a movie night was held, at which the three-reel Technology movie and two reels of Edgerton high-speed movies were shown. About five prospective M.I.T. students were present. They, as well as the Alumni, enjoyed especially the new Edgerton reel which showed the circus-performing cup of milk and the humming bird suspended in emptiness. Some of the shots in the Technology movie were of particular interest to the older members who saw for the first time pictures of the new Eastman Research Laboratories, the sailing pavilion, and the underpass in front of Tech.

On Tuesday, March 23, Samuel Prescott '94, Dean of Science at the Institute and Head of the Department of Biology and Public Health, was guest speaker. He mentioned many interesting developments at Tech, including the new high-voltage treatment for people suffering from cancer, the work of Dr. Robley Evans in detecting radium poisoning, and plans for the new biological engineering building. He also went into some detail

regarding the application of biophysics and biochemistry to the development of such things as frozen food and canned goods. He had as his guests Dr. Donald Tressler and Dr. George Hucker of Geneva. Raymond Rundlett '22 of New York City was the guest of C. King Crofton '22. Included among others who attended were two members of the M.I.T. Corporation: Frank Lovejoy '94, President of the Eastman Kodak Company, and Albert F. Sulzer '01, Vice-president, Assistant General Manager, and Director of the Eastman Kodak Company. — E. PHILIP KRON '34, *Secretary*, Building 23, Kodak Park, Rochester, N. Y.

Worcester County Alumni Association of M.I.T.

Talking pictures and lantern slides showing construction of the San Francisco-Oakland Bay Bridge featured the dinner meeting of the Association held on March 16 at The Bancroft. Frank Bemis '25, rope engineer of the American Steel and Wire Company, told of the background and history of the bridge, using slides to illustrate his talk. Alumni Secretary Locke '96 told of the stabilization plan at the Institute limiting enrollment in the freshman class. Before Mr. Bemis showed his pictures, Albert J. Hoyt '14, assistant district manager of the American Steel and Wire Company, gave a short talk. A "Vox Pop" program, with W. Sargent Crowell '32 of Fitchburg and Richard R. Snow '31 of Worcester as interrogators, provided entertainment.

Ercell A. Teeson '15 of Southbridge, President, named the following to the nominating committee, their report to be submitted at the spring meeting: Harold O. Berry '22 of Gardner, Charles E. Allen '07 of Spencer, Carl H. Wilson '34 of Southbridge, and Harry M. Latham '93, Ernest P. Whitehead '20, and Richard R. Snow '31 of Worcester.

The following members and guests attended: James N. Andreson '25, Frank W. Bemis '25, Roderic L. Bent '19, Harold A. Brown '36, Gordon W. Browne '29, Waldo E. Buck '76, Robert A. Canning '30, Robert G. Clarke '35, F. Harold Daniels '11, Hamilton L. Davis '31, Lewis Davis '12, Orville B. Denison '11, Daniel P. Dyer, Jr., '32, Robert L. Fuller '96, Ralph F. Gow '25, Albert J. Hoyt '14, Robert N. C. Hessel '27, Arthur W. Johnson '14, Harry M. Latham '93, Arthur J. Lariviere '35, George D. Manter '31, Oscar T. Marzke '32, Myles Morgan '23, Roger M. Peirce '27, J. Weston Pratt '24, Carleton A. Read '91, Richard R. Snow '31, Howard R. Stewart '17, John A. Swift '27, Henry R. Tomlinson '22, Louis E. Vaughan '02, Lewis S. Vose '16, Ernest P. Whitehead '20, and William A. Wilder '98, all of Worcester; Howard F. Atwood '32 of Bolton; Willard H. Foster '32 and Richard S. Rowlett '16 of Brookfield; Fremont N. Turgeon '04 of East Brookfield; Charles E. Cashman, Jr., '33, Wallace S. Crowell '32, M. H. Etstein '32, Ambrose L. Kerrigan '21, and Andrew B. Sherman '06 of Fitchburg; Harold O. Berry '22, Stanford H. Hartshorn '11, Edward C. Keyworth

'24, and Roger R. Smith '27 of Gardner; Philip L. Hatch '26 and Elmer E. Legge '18 of Leicester; Maurice C. Beren '28, Robert J. Proctor '28, and Robert W. Rogers '26 of Leominster; Arthur J. Buckley '27 and Albert A. Gordon, 3d, '23 of Shrewsbury; Arthur G. Anderson '30, W. Franklin Baxter, Jr., '34, Alanson G. Bowen '33, William K. Dalton '36, John S. Middleton '29, Ercell A. Teeson '15, and Carl H. Wilson '34 of Southbridge; Charles E. Allen '07 and Edmund H. Squire '07 of Spencer; Ralph G. Mahony '18 of Sterling; William P. Canning '36 of Sturbridge; D. L. K. Hathaway '86 of Warren; Frederick W. Farrell '04 of West Brookfield; and Martin F. Cosgrove '34 of Westboro. Guests present were: Charles E. Locke '96, M.I.T. Alumni Secretary; Thomas Bergin, James Fuller, Charles E. Goodrich, W. Hillman, James F. Howe, James B. Lowell, H. R. Swanberg, John F. Sullivan, and A. F. Tarr of Worcester; Edward G. Watkins of Gardner; and Frederick B. Traill of Spencer. — JOHN A. SWIFT '27, *Secretary*, 15 Stoneland Road, Worcester, Mass.

CLASS NOTES

1883

In the "50 years ago" series Julien Vose writes as follows: "In June, 1933, when we attended the graduation and then lunched at Cambridge with Dr. Compton, I told him the following, which will answer for the 50-year story: I want to tell you what M.I.T. did for me. I am not going to refer to the scientific knowledge which I gained here but rather on the social order. Fifty years ago the president of M.I.T. did not have a beautiful palace like this and the boys did not have such fine dormitories; they were obliged to hunt for rooms. Many roomed on Columbus Avenue. In one house on the avenue every room was occupied by a Tech man. In this house there was a large room in which I learned the great American game of poker, the results of which have dominated the whole of my life on the happy side! It happened in this way: Among the boys playing there was one who was a hard loser. I chummed with this boy, and when June came he invited me to go blue fishing at Edgartown. I went, caught a lot of fish, and then came to town and walked down Main Street. On the other side of the street I saw a most beautiful girl. My chum introduced me, and three years later she became my wife and we have been very happy. We have three children, five grandchildren, and two great grandchildren. For this I am grateful to M.I.T."

Vose, for many years, was associated with his brother and others in the Vose Piano Company, which manufactured all grades of pianos and sold them all over the country and elsewhere. The competition with radio in recent years became heavy and the factory was sold.

The Secretary in March played golf at Sebring, Fla., in the United States Seniors' Tournament at Kenilworth Lodge

1883 Continued

— an annual affair. Sebring is a delightful place in the Florida Highlands in the center of the state, near Mountain Lake Club and the Bok Singing Tower. Classmates looking for a winter sojourn in Florida cannot find a more attractive location. — HARVEY S. CHASE, *Secretary*, Bridge Street, South Hamilton, Mass.

1887

The '87 class notes in the March number of *The Review* were brightened by the inclusion of an interesting letter from Granger Whitney, a letter so welcome that it was given precedence over all others in that budget. It is hard to realize that this message is the last one to be received from our beloved classmate, for he passed away very suddenly at his home in Detroit on the afternoon of March 18, as he was sitting reading in his chair. His reference in that letter to his personal sense of loss in the passing of Charlie Proctor and Archie McColl was most sympathetic, and it is a strange and mysterious decree of fate that he should follow them so shortly after those lines were written. His "Prismatic Verse," which he so modestly described as "a little book of verses, attenuate and thin," will be cherished by all his classmates who were privileged to attend the 45th reunion, at which time the books were distributed to all present. His loss will be keenly felt by every member of the Class. Funeral services were held in Beverly, Mass., on March 22, at which the Class was represented by Cole, Lane, Curtis, and Very.

The following is from the *Beverly Times*: "Mr. Whitney was the son of Captain and Mrs. Elisha Whitney, and his boyhood days were spent in the old Whitney home at 12 Washington Street. After attending the Beverly schools he entered the M.I.T., graduating in 1887. Following his graduation he filled engineering positions in the South. He served in the Navy in the Spanish-American War. Inheriting his father's love of the sea, he wrote with distinct charm and wit a delightful book of humorous verses, which had the spicy tang of the sea and which reflected the writer's appreciation of the joys of outdoor life. Many of his poems were written for the Detroit Engineering Society. Others were published in the *Saturday Evening Post* and other periodicals. Mr. Whitney married Miss Julia Pitman of Detroit, who survives him. Of striking personality and unusual social charm, he was warmly loved by his friends in the East and in the West. His great interest for many years was his apple orchard in Williamsburg, Mich. Mr. Whitney was the last member of the fine old Whitney family, consisting of his parents, and his sisters, Margaret, Anna, and Kate (Mrs. Roland W. Boyden), who contributed so much to the life of the community." — Mr. Whitney was a member of the University Club, the Detroit Club, Detroit Curling Club, Wittenagomote Club, Yondotega Club, and the Prismatic Club.

A card from N. P. Ames Carter at Rio de Janeiro, Brazil, on January 26 describes the beauties of the harbor as seen

from Corcovado. The summer season must be in full swing down there, as the writer deposes that it is "as hot here as it will be at our reunion next June." — Through the courtesy of Winthrop Cole, the Secretary is enabled to furnish an added amount of class news received in responses to the recent circular letter announcing the coming reunion. Henry W. Holt, associate justice of the supreme court of appeals of Virginia, writes: "I thank you very much for the picture you sent me of the Class. It would be difficult to assemble a group of men more distinguished in appearance and a group which has done more. They are builders whose monuments stand about them and are worthy representatives of America's most distinguished scientific school. It is with pride that I remember I was their associate."

"Last fall I visited my married daughter in Worcester and, in passing through your beautiful city on my way to the airport, saw with pride the beautiful group of buildings which now houses the Tech. It gave me pleasure to note the memorial to General Francis A. Walker. I remember he did me the honor of having me as a guest in his home. My impressions of him are vivid and, as I remember him, he seemed to be a man of great ability. To my regret my court is in session during June reunions and so prevents my attendance upon occasions which would give me pleasure."

A card from Arthur Nickels at Clearwater, Fla., states that he intended to stay there until April 15: "So far here a wonderful winter, and enjoying the climate. Very saw me off on the boat at Boston, which was very pleasing." — Bert (alias Squash) Cushing, writing from Pawtucket, R. I., says: "Glad to receive Giles' breezy 'looking forward.' I will be at our 50th anniversary in body or spirit. Am anxious for the day to come. Just think — 50 years!" — William B. Blake sends the following from 2836 Sixth Avenue North, St. Petersburg, Fla.: "I have your interesting circular letter of the 15th. . . . I intend to be present at the Golden Anniversary of the Class . . . to be celebrated in June. I am spending my fourth consecutive winter in St. Petersburg. Among our recent callers were classmate William R. Thomas and Mrs. Thomas of Pittsfield, Mass. Mrs. Blake and I expect to leave here about May 25 and spend the summer in Newburyport."

George L. Norris writes from New York: "I have been patiently waiting for 50 years to roll by before attending any class reunion. I fully intend to be present at the 50th. Whether after attending the 50th I shall stay away until the 75th is still undecided. I am sorry, but I cannot help you out on address of Safford." (The address referred to is that of Leandro T. Safford, who has recently been located at 1636 Wakeling Street, Philadelphia, Pa.) — Walter S. Moody was of the distinguished gathering attendant at the funeral services of Professor Elihu Thomson in Lynn, Mass., on March 15. — George Sylvester is mentioned in the club notes as Honorary President of the M.I.T. Club

of East Tennessee, a fitting tribute to one whom we hope to meet at our 50th next month.

Most welcome were the two interesting letters from Herb Wilcox, of South Pasadena, Calif., whose interest in his classmates and his Alma Mater continues unabated despite the waste separating Boston and the West Coast. "I was pleased to receive a letter from you," he says, "even if it was written only in the line of duty. I seldom see an '87 man here, but am always interested to hear about any of them. I am always disappointed when I receive a copy of *The Review* and do not find any '87 news in it. Granger Whitney called on me in 1931, and Giles Taintor about ten years ago. I keep my copy of the *Register of Former Students* handy for reference, and my auto license plate is 1887, with a standing request on file that it be reserved for me. I have a daughter living in Syracuse, N. Y., a sister in New Bedford, Mass., a number of distant relations in Massachusetts and Rhode Island, and get back East every few years for a visit, the last time being in 1933. I usually manage to look up some '87 men. Have been living in California since 1912; before that was for many years in Colorado. Have become gradually less active in the mining line since leaving Colorado, and completely retired since 1929. In recent years have done considerable traveling for pleasure. Last year, March to September, my wife and I took a trip around the world, visited Japan, China, Korea, Manchukuo, Straits Settlements, Ceylon, South Africa, east coast of South America, including Argentina, Uruguay, and Brazil, and home via the Panama Canal, thirty thousand miles by water and about fifteen thousand miles by land. This was my third time through the Big Ditch."

"I was naturally especially interested in the gold mining district of Johannesburg and the diamond mines at Kimberley. At the latter place saw many thousands of dollars worth of uncut diamonds. I was permitted to handle some of them, one weighing 65 carats, but was watched so closely that I did not bring away any souvenirs. I still hope to attend the 50th. Shall be glad to see Nickels, Norris, and Mosman — all miners of '87. Nickels called on me in Minnesota in 1888 or 1889. He got there the night before Fourth of July and was induced to play on the mine's baseball team against the town team. He did some spectacular work, including the catching of a long fly to left field and the return of the ball, with perfect accuracy, to the catcher, putting out a man at home plate. I nearly lost my job on the strength of it, as I did not play ball, and the boys wanted him kept there in my place, so he could continue to play on the team. He left us the next day and I don't suppose he ever knew how close he came to being forcibly kept there. I may add that the town boys were much afraid of him, as they knew he was a stranger on the team and the rumor spread that he was a professional player, imported for that game. His batting was good also, included a couple of two-base hits; don't remember

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1887 Continued

any home runs. He also entered a running contest, but an Indian from the near-by reservation beat them all at that. I saw Norris and Mosman in New York a few years ago. I have kept in touch with Norris with occasional correspondence through all these years. He was out here a few years ago (January, 1929) and we spent considerable time together. Well, I'll be seeing you."

Henry D. Sears requests that his address be changed from Mohawk Club, Schenectady, N. Y., to 53 Elm Street, Worcester, Mass. — NATHANIEL T. VERY, *Secretary*, 1 Hamilton Street, Salem, Mass.

1888

"Besler Night at the New York Railroad Club" is the front-page headline of October, 1936, *Official Proceedings* of this club, the largest of its kind in the country, as proved by an attendance of 2,750 at its last annual dinner. This headline in the engineering world corresponds to stage and screen stars having their names in electric lights over Broadway. About a year ago we made brief mention in these class notes of the accomplishments of the Besler brothers in high-pressure steam in fields not before covered; William J. Besler, younger son of our classmate, is the first and only man who ever flew a plane driven by steam and motored with one of the Besler Systems' 1,500-pound pressure engines. Since that time they have sold a number of units to Russia, the last one going to Japan about two months ago. All this in spite of the fact that our government pronounced the results impossible after two years of study and effort.

The meetings of the New York Railroad Club are held in the auditorium of the Engineering Societies Building at 29 West 39th Street, New York City, and Besler Night occurred on October 16. We quote from the official proceedings as follows: "I see we have in the audience a gentleman who was president of this club during 1909-1910; a man who now and for years has been a high executive on one of our important transportation systems; a man who still remains the youngest in heart and spirit among the membership of the club; one who ranks among the great railroad men of his day and one of the most lovable personalities the railroad fraternity has ever known, Mr. William G. Besler, chairman of the board of directors, Central Railroad of New Jersey. (Applause.) . . ."

The Besler brothers, George D. and William J., later read papers describing the "New Haven Two-car Train with Besler Power Plant, Oil Burner, Auxiliary Engine, and Condenser." We touch only a very few of the high points for the benefit of the large number of our classmates who are interested in steam and railroad engineering: This Besler steam-powered streamline train has been in operation between Bridgeport and Hartford since September 8. It makes four round trips daily between Bridgeport and Waterbury and one round trip between Waterbury and Hartford, covering 320 miles each day, making a total of 12 station stops

between Bridgeport and Hartford, a distance of about 63 miles. Passenger travel has increased about 15% over this section of the New Haven road since the new service was started. The train covers the approximately 32 miles between Waterbury and Bridgeport in 50 minutes or at the rate of 38.4 miles an hour including stops. It made over 82 miles per hour on the only speed trial it was allowed to make. Total weight of the entire train is 152 tons; horse power, 550; seating capacity, 152; baggage, 3,000 pounds; length, 163 feet. It burns one pound of fuel oil per horse-power hour. The power car has fuel and water tanks of 500 gallons' capacity each. The engine-room equipment occupies but $6\frac{3}{4}$ linear feet, or about four per cent of the entire length of the train.

The steam pressure varies up to 1,500 pounds per square inch. The temperature of the steam is maintained at 760 degrees regardless of the pressure. This is fully automatic, like all other details of operation, and the operator can do nothing about it. The boiler is left entirely alone. The engineer has three controls only, which he takes from one end of the train to the other when running in the opposite direction. These are the throttle, air-brake handle, and reverse mechanism. There is no transmission and not a single gear of any description in this two-car train. It requires only about four minutes to steam up from dead cold.

We will close this brief description of the wonderful new train by giving a quotation by our classmate's older son, George D. Besler, President of the Besler Systems: "My father very kindly said a few words about my brother and myself, and we both feel and know that whatever success we have had so far has been due entirely to his encouragement and his assistance."

Ned Webster won the gold medal at the spring flower show of the Massachusetts Horticultural Society as usual. The exhibition was the largest in entries made, attendance, and financial success of any of the hundreds of shows given by the society during its long history. This was to be expected with Ned's guiding hand as president of the society for the last dozen years or more.

President Alfred H. Sawyer made his 35th ascent of Wachusett Mountain over the week-end of Washington's Birthday with his group of faithful followers from the Appalachian Mountain Club. — Your Secretary arrived on Chebeague Island, Maine, about April 19 after a final three weeks of golf and attendance at all kinds of Naval Academy activities, such as baseball, track, wrestling, boxing, and rowing, which should have a tendency to renew his youth. Wish you all a very enjoyable spring. — BERTRAND R. T. COLLINS, *Secretary*, Chebeague Island, Maine.

1889

Lewis has been motoring about in Florida this winter. — E. V. Shepard died in New York on February 9. The following obituary is from the Boston

Herald of February 10: "Edward Valentine Shepard, 67, internationally known writer, lecturer, and teacher of bridge, died yesterday at his home here [N. Y.]. A native of Salem, Mass., he was a graduate of the M.I.T. He had worked as an engineer in Central and South America before his interest in the mathematical element in the card game led him to take it up professionally. He had done no teaching since his wife, Jane Shepard, died in 1931. Funeral services were held . . . in the Riverside Memorial Chapel. Burial will be in Cambridge, Mass."

William L. Smith will retire from full-time service at Northeastern University this year. The Boston *Globe* comments on this as follows: "Professor William Lincoln Smith, for about 45 years a member of the faculty of Northeastern University and its predecessor school, will retire from full-time active service at the close of the present college year. At present the chairman of the department of electrical engineering, Professor Smith will give a part of his time to teaching, but will relinquish the administrative responsibility he has directed since it was organized."

"General Benjamin Lincoln, one of his great-great-grandparents, was an important figure of his day. A resident of Hingham during the 77 years of his life, except, of course, when other duties called him away, he was lieutenant governor of Massachusetts, collector of the port of Boston, secretary of war of the United States, and a major general of the Continental and United States Armies. He received the sword of General Cornwallis at the surrender of Yorktown."

"Professor Smith, at 69, is the oldest faculty member in point of age and service at Northeastern University. He was educated at the Boston Latin School and M.I.T. . . . After a year of study in mathematics and physics at the University of Paris, Professor Smith returned to M.I.T. to teach from 1891 to 1904, being also associated with the Young Men's Christian Association school. He became one of the early faculty members of Northeastern University on its organization in 1898. He is a member of many organizations, including the American Institute of Electrical Engineers, Society for the Promotion of Engineering Education, National Association of Electrical Inspectors, Association of Municipal Electrical Inspectors of Massachusetts and Rhode Island, and National Fire Protective Association. Professor Smith has served his own town of Concord, Mass., since 1906 as municipal electrical inspector and consultant. He has written many articles for magazines and journals. Undergraduates, faculty, alumni, and professional associates plan to honor him at a testimonial dinner at the Boston Chamber of Commerce on Saturday night, May 8. . . ." — WALTER H. KILHAM, *Secretary*, 126 Newbury Street, Boston, Mass.

1891

Our annual winter dinner was held at the Algonquin Club, Boston, on Saturday, January 30. There were 27 present,

1891 Continued

which is the largest number attending one of these dinners for many years. Those present were: Smith, Clark, Cole, Ambrose, Blanchard, Barnes, Bowen, Young, Dart, Colburn, Brown, Fuller, Forbes, Damon, Howard, Vaillant, Fiske, Capen, Bradlee, G. A. Holmes, Douglass, F. C. Holmes, Birks, Snyder, Dana, Wilder, Punchard. We were delighted to see Birks again, who came down from Montreal. He seemed in fine shape and gave a good report of the outlook in Canada. Francis Holmes brought Barney, who had a grand time, as usual. Dart and Smith came from Providence. We had letters, greetings, regrets, and so on, from Earl, Campbell, Lawrence, Wason, Hopton, Wetherbee, Hatch, Wilson, Keene, Atkinson, Tappan, Hawley, Swan, Bell. We hope next time those who missed this meeting can be present.

We were glad to hear from Powers in Springfield, Mass.: "I have not replied before to the invitation for the Tech dinner on Saturday, January 30. I would like to meet those that I used to know. However, I find it impossible to be present. I trust, however, that you will all have a good time. I was in Tech only two years and have not kept in touch with the Class excepting rarely a few members. Any time any of you are in Springfield or in the summer at Lake Sunapee, N. H., I would be pleased to see you."

Keene wrote that he was just getting over the grippe and was spending next month in the Caribbean. — Moore wrote from Phoenix, Ariz.: "Am enjoying the balmy breezes that the West Coast men write about! Snowed one inch this morning; 20-degree temperature yesterday A.M. Cloudy most of the time. 'Very unusual weather.'" — Ryder wrote that he was just starting on a three months' trip to Florida.

Hanington writes from Denver: "The 45th-reunion booklet arrived this A.M. and I have been very much interested in reading it. My last and only appearance at a reunion was in 1916, and I have very pleasant recollections of the good time we had. I hope to attend one again before I am too old and feeble to get about. After we pass 60, old age comes on apace. I have always been in the mining game until during the World War when I cleared up all such interests. My only job now is to keep my eyes on this museum which is most interesting work. If ever you come this way don't fail to look me up."

Eli Bird writes from New York: "Greeting to my classmates as you gather around the table to renew again the old-time spirit of real brotherhood — that spirit that will never pass out of our lives, but live on and on. The Class of '91 has never faltered, never failed as the years have passed, the wholesome friendliness has been most evident; as the years go on we live in the past to a great extent, and that past is most pleasant to look back upon. So I will be with you in spirit, knowing that it's always fair weather when good fellows get together. My best wishes to the sterling men of '91."

John Putnam writes from New Haven: "I had thought that perhaps this winter I would go up to Boston to the class dinner. The good time I had at the reunion last summer makes me want to attend all the class functions I can, but my wife's health is such at the present time that it is not possible. She suffers from sciatica so that I cannot leave her for overnight. At the same time we think it is improving and hope by summertime it will be better. Barney says that the Class is the best class ever graduated from Tech. I agree with him. Please tell them so and convey to them my best wishes for more life, good health, and more (they couldn't be better) reunions. My daughter over at West Dennis, Mass., got a great kick out of the reunion and was disappointed that she didn't see you when you were at Harwichport. . . ."

A most interesting letter from Albert Gottlieb, whom we were so glad to see at our 45th: "Answering your notice of the class dinner . . . I regret that I cannot be with you but will ask you to extend my greetings and kindest regards to all those present. Wish I could see those movies of the reunion. I received the class book a few days ago and find it fascinating. To you and to Dana, who, I presume, are chiefly responsible for it, I send my hearty thanks. And please thank Bradlee on my behalf for the photo of the reunion which the class book told me came from him. It is now one of my cherished possessions. The one sad note in the book, the death of Charlie Aiken, was a real shock to me. I had not heard of it before. We not only met at reunions but I saw him occasionally in New York and soon learned to love him, not for his wit alone but for all his fine qualities."

"In cleaning out old files for the New Year I came across two '91 songs which I inclose for your archives in case you do not already have them. The printed words were written by Hathaway and I wrote music (?) for them but am not sending the score as it is terribly freshman, if you get what I mean. I believe an attempt was made to sing it for the first and, perhaps, the only time, at a class dinner at the Thorndike Hotel. It must have been at the end of our freshman year. Of the second song, entitled 'Class Song, '91,' I found only the words, written in longhand by Hathaway, I am almost certain, and dated November 12, 1888. I did not write any music for this one, probably because my muse went back on me, or for some other unaccountable reason, because I had plenty of nerve as a sophomore. It must have been sung to a tune by some more capable composer. And now just one more message of thanks to you for your gracious word of welcome to me in the class book, but I think the greater joy was mine to meet again all those fine, loyal, sturdy men of the Class of '91." The first song mentioned was written by Hathaway in June, 1888, and was printed. It was sung at our freshman dinner at the Hotel Thorndike, and was sung at our 46th reunion dinner by Barnes. The

second song was written by Hathaway and dated November 12, 1888, and probably sung at our sophomore dinner. This was sung at our 46th by Douglass.

After the dinner Gorham Dana showed movies of our 40th at Wianno. Some of these were taken by Charlie Aiken, and some were colored. They were most interesting, especially the colored movies.

A recent letter from George Hooper reads, in part, as follows: "We had our usual open house for the Rose Bowl game with a help-yourself lunch and had acceptances from Charles Garrison and his family and Burt Kimball and his wife, but at the last moment Burt phoned that he could not get here, and nothing was seen nor heard from the Garrisons, who probably found traffic congestion too much of an effort to overcome. Arthur Alley and his sister were also invited, but they wrote that they were not to be in town on that day. They, by the way, took an apartment in La Jolla, Calif., for the winter. I have yet heard nothing from T. M. Brooks in response to my letter addressed to him at La Jolla so I have said nothing to Arthur about B's supposed presence in La Jolla."

"The idea of winter brings up the fact that we had a real one. After the late and warm autumn the temperatures suddenly dropped and rains set in heavily. We had several times as much precipitation as is usual for this district, with more thunder storms than the aggregate for the past few years. Also we had a freeze which seriously damaged all but the most hardy vegetation. An experienced man told me that the orange crop had been 25% ruined."

"Our son was transferred on January 1 from the Martinez plant of the Shell Oil Company to their Wilmington refinery about 30 miles south of here, where a new research plant is being erected. This gives us our boy's company each week-end, his working schedule leaving him free from each Friday night to Monday morning. We are looking forward to taking a little trip to relieve my wife of house-keeping cares for a brief period."

In another letter George said: "Please note that the address of T. M. Brooks has been changed to 350 Westbourne Drive, La Jolla, Calif. This is a new residence into which he has just moved. I was in that vicinity last week and hunted him up, but was not fortunate in finding him, as he was not to be at home until several hours after my call. I had a chat however with one of his sons. The 45th Reunion pamphlet has been received and I am very glad to have it; it is an excellent piece of work. I am surprised, though, to see the long list of men who cannot be located. I should not omit saying that we saw Arthur Alley and his sister last week, they calling upon us at our hotel. . . ."

A postal-card greeting was received by Barney from Anna Gove, Greensboro, N. C. — The following letter from Harry Young to Barney was written in March: "Well, here we are at Nassau. Have been here for three weeks, and Mrs. Young and I expect to stay three weeks more on this

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1891 Continued

tropical island. There seems to be everything here — golf, tennis, sailing, fishing, swimming, gambling, night clubs, dancing, and what not. The place is wide open during the short three months' season to get your money as fast as possible while it lasts. The natives are black but they live over the hill and seem happy and healthy, very different from Jamaica. The whites — mostly English with some Americans who have already located here to avoid taxes — live on the harbor side, and there are some very good houses. There is no income or inheritance tax here and only a small real estate tax. Leaving out the high life, which is mostly for people who arrive on tours (some steamer stops here about every day for a day and anchors outside the harbor and everybody comes ashore to spend money), the place is very beautiful and reminds one of Honolulu. We go over to Hog Island each morning on a little boat and the trip up the harbor is very interesting as the natives (blacks) come in with schooner loads of vegetables, hay, fish, sponges, and so on, sell them at the market, and take back cloth, pots and pans, and what not, like the old trading days. They bring their whole families and cook their meals on the deck of the boat. Generally there are 12 or 15 of the little old schooners anchored off the market dock. Most of the food comes from other islands and fruit comes from Miami three times a week. We really get better grapefruit and oranges than we found last year in Florida. They sell all the best ones.

"At the beach called Paradise Beach (and it's well named) we swim in water 73 degrees, in a little harbor with a coral reef which keeps out the sharks. I'm getting to be quite a swimmer. It's good exercise for an old fellow like me. . . . A German warship was anchored off here for a week and we had a very interesting time with a lieutenant we entertained from Berlin, a nice young fellow, 21 years old. We got along very well, using English, French, German, and sometimes Latin, as he had studied them all. Am writing his mother that he was here, which I know will please her. . . ."

Charlie Garrison keeps us posted and a recent letter to Barney reads in part as follows: "We have had a pleasant and busy winter with this house full of our family and friends. At Christmas my sister, Eleanor, celebrated with us as she has been at Hollywood for several weeks. You remember she lives at West Dennis, Mass., next door to John Putnam's sister. Bob and Catherine start on a trip around the world the end of this month to be gone five months. Honolulu, New Zealand, Australia, Bali, Java. A Ford car is to be delivered to them at Genoa, Italy, and they will tour Italy, France, Switzerland. We are to be with the grandchildren at San Marino, Calif. (2854 North Gainsboro Road), during March and May and take them to the Long Beach house for July. A practical nurse whom the children know well will take over the family for April and June.

"We have been much occupied with music. I have the latest Victor Electrola which reproduces the overtones to the limit of hearing and gives a perfect reproduction of the records made with 'high fidelity.' We have added to our parlor so as to make a fine music room, 20 feet by 13 feet, with windows on three sides and a door onto a piazza, 10 feet by 15 feet, partially covered, from which we have a view of the mountains. Our music club meets here every third Tuesday when we hear the fine symphonies, concertos, and so on. Out near the Gaviota Pass there has been quite a waterfall, about 100 feet high, although only a small brook falls over it. It is quite a sight for this country and we went to see it the other day (round trip 75 miles). We took with us President Walker's two daughters, who are here for a few weeks. We enjoyed seeing them very much. . . ."

Charlie wrote your Secretary about the same time regarding musical activities. It seems they have a music club and give concerts on the new Victor Electrola. As he says: "In September I bought a Victor Electrola R99 covered by the Capehart patents. It has a dynamic amplifier which reproduces the full base of the original production and it also responds to fundamentals and harmonies from 16 to 13,824 vibrations, covering the entire audible range. As a consequence you get the power and fine quality of the original performance near perfection. Records have only recently been able to record with high fidelity the whole range of music. It is just as good as being at the original concert. . . ." — Charlie always loved music; we played the violin together many years ago.

Your Assistant Secretary complains that the Secretary never gives any information about himself, so here goes: (a) Another granddaughter, four months old, Mary Louise Howe; now two of each kind. (b) Got on the S.S. *Berinquen*, March 4, and went to Puerto Rico and Santo Domingo. Trip, boat, food, all good, but trip too short and too few days on the water. Puerto Rico is not especially interesting. A hilly country, but elevations only 1,500 to 2,000 feet. They raise tobacco on the hillsides and sugar cane in the valleys, also some citrus fruit, coffee, and so on. There are few flowering trees and shrubs, and the island is not tropical like Jamaica, at least not around San Juan. San Juan is a large, modern-looking city with many nice buildings, bank, stores, casino, new capitol, clubs, and so on. There are old Spanish forts at the entrance to the harbor. Tourists are taken to two places where hand embroidery and lace work are made, labor cost being very low. There is a fine bathing beach with a large new pavilion and modern bathhouses facing the beach with a shower in each bathhouse. The beach is a cove with a runway across the entrance and wire netting to keep out sharks and barracuda. The temperature of the water is about 77 degrees and the water is very clear. The new Condado Hotel is close by, both being a mile or two out of the city.

We spent a day at Tuillo, the capital of the Dominican Republic, which is on the south side of the island of Haiti. This is the first Spanish settlement in this hemisphere and served as headquarters for the conquest of Mexico. The cathedral was started about 1505, and Columbus' bones are supposed to be there. The settlement has many old Spanish fortifications and buildings. The country is flat around here but very mountainous in the north. It seemed more tropical and had more flowers than San Juan, partly because it is on south side of the island, while San Juan is on the north side. There were mahogany novelties for tourists at Santo Domingo, mahogany being considered very fine. The weather seemed cooler than Jamaica or Panama. The sun always shines in the Caribbean this time of year.

After the foregoing notes were sent, Mr. Capen phoned The Review Office giving them word of two cards received by him. The first was sent from San Marino, Calif., by Charlie Garrison on March 15: "Here we are on our first month with the grandchildren. Bob and Catherine reach New Zealand next Thursday. Perhaps they will see the famous Glowworm Grotto with the *Boleophylla Luminosa* [?] that Charlie Aiken used to describe. Raining today and it looks as though we would have one of the greatest desert flower shows on record. Come on out and see it." The other was dated March 20, and sent from Redonda, British West Indies, by Bert Kimball. It was a picture card showing flowers which he describes as curious and beautiful. He goes on to say: "The class book is well gotten up and most interesting. I am so glad one was sent me. I hope you are feeling fine. Best regards. . . ." — HENRY A. FISKE, Secretary, Grinnell Company, Inc., 260 West Exchange Street, Providence, R. I. BARNARD CAPEN, Assistant Secretary, Early Convalescent Home, Cohasset, Mass.

1893

Frank W. Alexander of Richmond, Maine, died October 16. He was a special student in the chemistry course during our sophomore year. Previously he had received from Bowdoin College the degrees of A.B. in 1885 and A.M. in 1888. He devoted his life to teaching, principally at high schools in Maine and Massachusetts.

Peter F. Dolan, superintendent of the wire division of the Boston Fire Department, died at the Boston City Hospital, January 25. His home was in East Boston where he was born June 10, 1871, and where he lived all his life. He was graduated with the Class in electrical engineering. Except for two years, 1909 to 1911, when he was in business for himself as an electrical contractor, he has been in the employ of the city of Boston since 1894, at first in the engineering and wire departments of the city and from 1911 in the Boston Fire Department. Mrs. Dolan died many years ago. Of their ten children, he is survived by four sons and three daughters.

1893 Continued

Albert T. Marshall of 53 Oakland Terrace, Hartford, Conn., died March 6. He was graduated from Worcester Polytechnic Institute in the mechanical engineering course in 1889 and later was a special student at M.I.T. in this Course with our Class. After leaving Technology he was, for about four years, chief draftsman of the York Manufacturing Company at York, Pa. He next spent two years developing and patenting automatic refrigerating machinery. A new company was then formed, the Automatic Refrigerating Company, located at Hartford, which acquired his patents and with which he was associated thereafter. Marshall was born in Brockton, Mass., May 15, 1867. In 1893 he married Miss Lois A. Dunbar and they had two sons. He was a member of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers.

Mrs. Frances Norton, wife of Charles L. Norton, Professor at M.I.T., was fatally injured and four other persons were injured when two automobiles and a truck were involved in a crash in the Middlesex Fells, Melrose, Mass., on the night of February 6. Mrs. Norton died shortly after being taken to the Malden Hospital. Her maiden name was Frances Torrey. She married Charles Norton in 1895 and they had six children, three sons and three daughters. The Nortons lived at 5 Acorn Street on Beacon Hill, Boston. The following is taken from a tribute in the Boston *Evening Transcript*: "Mrs. Charles Ladd Norton, who has just passed away so suddenly, was a person of exceptional qualities and a true lover of the beautiful, both in the home and in the garden. In her quiet way she held the secret of fearlessly expressing herself in many ways, never failing those who turned to her for help and advice. She was the second president of the Beacon Hill Garden Club and became invaluable, especially with her original ideas at the garden exhibitions, where she took many prizes for the club. Her garden on the Hill, although the smallest of the yard gardens, was one of the most admired. At Annisquam, her herb garden, where she gave so much time and thought, and which she planned herself with exquisite feeling, is an outstanding example of its kind."

The following changes of addresses have been received: Orren Allen, 838 Leyden, Denver, Colo.; Henry W. Nichols, Apartment 616, 7020 Jeffery Avenue, Chicago, Ill.; Percy H. Thomas, Federal Power Commission, 10 Forsyth Street, Atlanta, Ga.; Ruel C. Tuttle, Weldon Hotel, Greenfield, Mass. — FREDERIC H. FAY, *Secretary*, 11 Beacon Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston, Mass.

1895

On Saturday, February 27, Jerry Swope acted as best man at the wedding of his son, David, to Miss Sarah Porter Hunsaker of Boston. The wedding was a beautiful and brilliant affair held in Kings Chapel, Boston. Mrs. W. Rupert

Maclaurin of Cambridge was the matron of honor, and Miss Alice Maclaurin Hunsaker was her sister's maid of honor. The two bridesmaids were Miss Henrietta Swope of Ossining, N. Y., sister of the bridegroom, and Miss Louise Spruance of Wilmington, Del. Gerard Swope, Jr., of Ossining, twin brother of the bridegroom, and Isaac Swope of Wayne, Pa., headed the corps of ushers, which also included their cousin, Herbert Bayard Swope, Jr., of New York City, and the bride's two brothers, Jerome Clarke Hunsaker, Jr., and James Peter Hunsaker, both of Boston. Following the wedding trip, Mr. Swope and his bride returned to Ossining, where they are at home.

In a letter just received from Al Zapf of Orange, Calif., we learn that a fine arts building at the University of Iowa was recently dedicated to our classmate, Edward Philip Schoentgen, who under various governors of Iowa has done some fine work for the state. We would like to hear more about this in detail from our mate, Shotgun. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

In a previous issue it had been noted that Charlie Nevin with Mrs. Nevin was basking in the winter sunshine of Florida at St. Petersburg, but direct communications from Charlie have been scarce and brief. In a note dated March 10, he apologizes for his shortcomings and reports that he had a very pleasant call on Irv Merrell in St. Petersburg. Irv has an office in town at 6 Seventh Street North, where he looks after his real estate and other interests. He is thoroughly happy in the South and finds it much better for his health than the North. Charlie and his wife had been taking many interesting auto trips around that part of the state adjacent to St. Petersburg. In a little later communication Charlie inclosed a clipping from the St. Petersburg *Times*, dated March 10, which stated that construction had begun the day before on what would be one of the most, if not the most pretentious beach homes ever to be built in St. Petersburg — the new residence of Mr. and Mrs. Irving Merrell. The clipping went into considerable detail on specifications for the house, which is to be a two-story affair containing 12 rooms and eight baths and will cover a ground space of 45 by 93 feet. The estimated cost is \$26,000. The entire house will be thoroughly insulated with rock wool, presumably to keep out the heat of summer. The exterior will also be entirely covered with asbestos shingles, which likewise have strong insulating properties as well as fireproof qualities.

Admiral Bakenhus was in Boston, Tuesday afternoon, March 9, through Thursday, March 11, with the main object of attending the meeting of the Departmental Visiting Committee in Mathematics at M.I.T., but, incidentally, he

followed up some investigations in the Civil Engineering Department at M.I.T. and, of course, had an appointment with Joe Levis' 26 and the M.I.T. fencing squad. Rockwell was also present at the fencing meet.

Vernie Peirce, after a long period of reticence, wrote to the Secretary on the first of March and expressed his regrets that he was unable to attend the reunion last June. He is chuck full of business in Washington, in his Bureau of Public Roads, and furthermore his health has not been so good, so that June would have been a very poor time for him to be away.

This has been a most unusual winter in New England from the climatic viewpoint, and also from another slant it is exceedingly strange, because at the time that these notes are being written — on March 26 — not a word has been heard from Con Young or Abby at their winter home in Fort Meyers, Fla., and we people here in New England are in absolute ignorance of their doings since they left Cape Cod last fall. Con ought to be reporting on the fish and he should be doing some broadcasting and singing. The first thing he knows, it will be spring again and time to fly North with the birds. Indirect word has come concerning another classmate in Florida, vonHolst, who had a housing enterprise at Boca Raton. The Miami club have sent word that vonHolst is no longer there and they think that he has returned to Chicago, but there is no word as to what he has done with his houses.

In the local Boston press there were stories of the 9th All-Unity Students Conference, sponsored by the Unitarian-Universalist Council for the benefit of students of Greater Boston at the Arlington Street Church, Sunday, March 7. The item of interest to the Class of '96 was that Dr. John Arnold Rockwell, former medical advisor at M.I.T., was announced as the speaker at the marriage discussion, but the amusing outcome was the following paragraph that appeared in the Boston *Evening Transcript* of March 8: "'The test of true love,' says Dr. John Rockwell, former medical advisor at M.I.T., 'is the extent of the swain's desire to maul a rival.'" — The *Transcript* also featured another classmate on March 5, when it reported the talk by H. C. Lythgoe, director of the division of food and drugs of the State Department of Health, at a dinner of the American Institute of Banking in the Boston City Club: Lythgoe told particularly about the work of his office in constant battle against dishonest food manufacturers.

Perhaps Bert Thompson thought he could sneak away with Mrs. Thompson on a sea voyage to the Caribbean and the Secretary would not know anything about it, but things do get out. Dean Bush '16 decided to take a trip on the United Fruit boat in February and on that 17-day cruise to Havana, Jamaica, Panama, and Costa Rica in the S.S. *Quirigua*, Bush had the Thompson couple constantly with him and reports that Bert was a royal good fellow and a charming

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1896 Continued

companion for a sea trip. He said especially that they found that they had many tastes in common.

It is with regret that we have to report the death of Thompson B. Crane, which occurred in Quincy, Mass., on March 25, after a brief illness. He was with us doing special work in architecture for one year during our undergraduate days. He was born in Quincy, November 16, 1872, the son of George and Mary A. H. Baxter Crane. He was married, April 25, 1906, to Miss Ida J. Cameron, who survives him, together with a daughter, Mrs. Isabella Cameron Streeter of Keene, N. H., and two grandchildren. His entire life was spent in Quincy, following the profession of architect and builder. At first he was associated in the building business with his father. He participated in the Spanish-American War. He was a Mason and Knight Templar, an Odd Fellow, a member of the New England Order of Protection, of the Spanish War Veterans Camp, and the Tom River Yacht Club, of which he was past commodore. He was also past commander of the John A. Boyd Camp, United States War Veterans. Funeral services were held at his residence, 403 Washington Street, Quincy, Saturday afternoon, March 27.

Word has been received from John Lonngren in Los Angeles, after a silence of a year or more which he explains as due to poor health. A year or so ago his health began to fail and doctors' pills did not help him. A specialist discovered a tumor which required an operation. He went to the hospital on May 23, 1936, for the first operation on June 2 and a second operation on September 8. He finally came home on October 28, which was the first day he had his clothes on. Since then he has been getting back to normal and is now resuming his active life.

Four more installments have been received on the Fullers, covering about another month of their period of waiting for a boat to Australia. They spent New Year's Day in Singapore, and the observance was about the same as in a city in the United States. Almost immediately they took a local boat for a three-week trip around Borneo, stopping at various ports, with a few automobile trips into the interior. Myron wrote a very interesting description of the Sea Dyaks who are now no longer ferocious head hunters. Another somewhat similar trip, but for only a week, was made by boat to Java where they made more extensive interior trips by auto and railroad. They continued for four very full days which were spent in beautiful Bali which they were leaving on February 3 to return to Singapore. — A last minute flash is from Bakenhus, sending a clipping from the New York *Mirror* with the query by him: "Is this our John?" "Medical note — Dr. John Rockwell, college medical advisor, declares there is one sure way to find out if you are in love. If someone else takes your girl out and you feel the urge to punch him in the nose, then it's love. We get it, Doc. And if the guy is bigger than you are — then it's suicide."

Readers will carefully note how John's remark has expanded between Boston and New York and wonder in what form it will appear in the San Francisco papers. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1901

Monday, June 7, is Alumni Day at M.I.T. and there is an extraordinarily interesting program (see recent notices from the Alumni Association). Furthermore, June 8 is the big day for the proud graduates, and on the previous Saturday evening, June 5, Tech night is to be celebrated at the Pops. Your Secretary or Willard Dow at Boston (see addresses below) will, therefore, be glad to hear from all 1901 men who are planning to attend one or all of the big events. We will then endeavor to make some convenient arrangements for getting together, and any of those who come from out of town and plan to stay over from Saturday until Monday or Tuesday shall certainly have no trouble in arranging a good golf game for Sunday, the 6th.

Time is indeed fleeting, and the sad notices which are received from the Alumni Association of the passing on of additional members of the Class make us realize that we should take advantage of every reasonable opportunity for getting together, which does not mean that we should be any less keen for the big reunions every five years. We recently received notice from the Alumni Association of the death, after a long illness, of George V. Pottle at his home, 2424 Calvert Avenue, Detroit, Mich., on December 5. Pottle was an architect and spent most of his business life in Detroit where, after working for several large architectural firms and teaching at Central High School and being instrumental in sending several future architects to Tech, he formed his own firm in 1908 and since then had specialized in preparing plans for fine residences and branch banks. He was much interested in Masonry and in addition was a member of the Detroit Athletic Club and the Oakland Hills Country Club. He is survived by his wife, Grace M. Pottle, and two children, John L. and Georgine Pottle. — The Alumni Association also advises of the death of the wife of Louis E. Williams at Detroit on January 5. Mrs. Williams was very popular and was very active in connection with the Detroit Engineering Society Women's Auxiliary, an organization which was extremely helpful to the Detroit Engineering Society. Mrs. Williams will be greatly missed by her many friends and we extend the sincere sympathy of the Class to Lou Williams and to his two daughters.

Ellis Lawrence, who was class president during our senior year and thereafter until 1906, sent in his class data sheet from Portland, Ore., where his firm of Lawrence, Holford and Allyn makes its headquarters at 925 Failing Building. Ellis is also dean of the school of architecture and allied arts of the University

of Oregon and advises that his partner and classmate, William G. Holford, is state architect for the Federal Housing Administration. Lawrence advises that his firm is carrying on a million dollars' worth of PWA projects and that he is also busy on city planning in connection with the taxation and public works committee of the Research Council of the city. Lawrence noted that he is on the executive committee on education of the American Institute of Architecture, of which Dean Emerson is chairman, so that through him he is enabled to keep in touch with M.I.T. doings.

Fred Freeman, who was president of the Class in 1910-1911 and whom I had the pleasure of seeing in Portland, Maine, last year, briefly gives his occupation on his data sheet as rug manufacturer, and I believe that in connection with the New England Guild he is very much interested in collecting the homemade rugs which have always been so famous in this part of the country. — Charlie Bittinger briefly advises that he is "one of the 11,000,000 unemployed," his present address being 3403 O Street, Northwest, Washington, D. C. We therefore hope that if he wants to be busy, he has found what he wanted and that in any event he is continuing to do some of the attractive pictures for which he was well known in Boston.

Bill Sweetser, who helped to make the 35th reunion more worth while and who certainly kept some of us busy on the golf course on that occasion, advises that at the University of Maine at Orono, where he is professor of the mechanical engineering department, certain military officers who are stationed at the university consider themselves, since the last presidential election, as more or less on foreign service. Maine was certainly loyal to old traditions last November and possibly as time goes on more and more of the other states will very likely come to the conclusion that, after all, the Maine way of voting was most reasonable as well as logical. I hope to see Bill when down in Maine sometime this year and perhaps be able to accept his challenge to a game of golf on his home course. — Willard Dow, who is a certified public accountant at 20 Beacon Street, Boston, has sent in a very ingenious ten-year calendar which he had copyrighted and which allows one to determine instantly the days of the week that various dates fall on for ten years in advance. A facsimile of the calendar appears in the front section of this issue. Willard is a member of the Alumni Council for the Class and I occasionally have the pleasure of seeing him at Council meetings at Walker Memorial, M.I.T.

Frank Holmes, who was president of the Class in our junior year and who for years has been connected with the Power Equipment Company in Boston, is now New England representative for the Dayton-Dowd Company of Quincy, Ill., and the Andale Company of Philadelphia, Pa., and gives his headquarters' address as Post Office Box 22, Swampscott, Mass. He handles all kinds of centrifugal pumps

1901 Continued

for the first-named company and oil coolers, heaters, strainers, and so on, for the second-named company. He advises that business is good. At the time of our 35th reunion Frank happened to be in Philadelphia and so had to send his regrets, but is already planning to attend the next event. — Stuart B. Miller, X, gave no news on his data sheet but noted that his address is 209 East Arch Street, Marquette, Mich.

Perk Parrock, whom I have heard from several times since the reunion and who is now located at 2439 Pacific Avenue, San Francisco, Calif., advises that he recently endeavored to arrange a luncheon for San Francisco Bay Alumni of the Class. However, Henry Marcus was the only one who could attend, Philip Baker being ill and Charles Anderson not being able to get away from his duties at The Mare Island Navy Yard. Perk stated that he hoped to have a better attendance at some future luncheon. In regard to the solidarity committee of which Perk Parrock is chairman, he made some pertinent remarks regarding rehabilitation, and so on, and promised a further report at a later date.

The Alumni Office has sent the following corrected addresses: William A. Niles is now at 314 Lenox Street, New Haven, Conn., and Charles P. Rockwood is at 814 South Street, Geneva, Ill. — Harry Allen writes briefly from 431 Walton Road, Maplewood, N. J., and I understand that he is still handling sales and engineering work in the New York district for the Elliott Company, manufacturers of steam and electrical power machinery. His business address is 225 Broadway, New York, N. Y.

Bill Newlin, secretary of the faculty of Amherst College, has written briefly to state that he continues to believe that it would prove worth while for each of us to have a complete list of the members of our Class. That was one of the things which was being considered by the solidarity committee, and even if no other plan is worked out, your Secretary hopes that it will prove feasible to prepare such a list and to have it worked out on a geographical as well as alphabetical basis, brief mention to be made of the businesses in which each member is principally engaged. — Bill Farnham, who was mentioned in the January Review as being traffic facilities engineer of the American Telephone and Telegraph Company, has written from Pasadena, Calif., stating that he has recently retired from business and that he was out there in California having a most enjoyable vacation after spending 35 years with the Telephone Company. By this time Bill has probably returned to his home at the Hotel Alvord, 42 South Clinton Street, East Orange, N. J., and should surely be in a most satisfactory position to attend all future reunions. All of us present at the 35th reunion were mighty glad to see him at that time.

Henry Gilson, another one of the fortunate retired members of the Class and who was also at the 35th reunion, writes that, since his retirement in 1933,

he has been living in his old home town of Groton, Mass., where he is making a hobby of developing an evergreen nursery and doing other experimenting along similar lines. He states that he is also chairman of the town finance committee and that during the last two years he has been enabled to reduce the tax rate from \$37.40 to \$30. Henry advised that that was some battle, and no one can take exception to that statement. Henry also states that after the death of his first wife he married again and in addition to the six children by the first marriage he has two more by the second. He is very proud to report that the eighth child has red hair. He certainly is to be congratulated on his wonderful family which now includes five grandchildren, three of whom are older than the two children by his second marriage.

Paul Hilken has written again to state that he recently attended the Tech banquet at the Waldorf-Astoria in New York, and that at the '01 table there were present Asher Weil, Mansfield Estabrook, and Arthur Hayden, who had brought his wife. Paul also stated that Corporal Bailey phoned him recently from Brooklyn, N. Y.; he is now retired from the Brooklyn Navy Yard and is living at home. I am sure that everybody remembers the genial Corporal whom we knew during our Tech days but whom many of us, I am sorry to say, have not had the pleasure of seeing since that time. However, now that he is retired, I hope that we will be seeing him at one of our future reunions. Possibly, therefore, the Corporal can be present at Alumni Day this June 7, and we trust many more of the Class will also write that they are coming. — ROGER W. WIGHT, *Secretary*, Care of The Travelers Fire Insurance Company, Hartford, Conn. WILLARD W. DOW, C.P.A., *Assistant Secretary*, 20 Beacon Street, Boston, Mass.

1902

As we sit down to type these notes with Wachusett Mountain standing out dark against the cold light of a March sunset, it is hard to realize that when you read them the leaves will be out and the birds will be singing and the class reunion will be only six weeks away. The final *Retort* will be reaching you soon with its reply card, but already enough classmates have said that they are coming to make a pretty good reunion in itself. If you have not done so already, mark June 11 to 13 on your calendars and start making your plans to head for Oyster Harbors on Cape Cod.

Joe Ballard recently retired from the Griswoldville Manufacturing Company with which he has been associated ever since our graduation. On February 16 he was tendered a surprise banquet at the Weldon Hotel in Greenfield, Mass., by the head men of the company and was presented with a silver bowl by H. P. Kendall, President of the Kendall Company, with which the Griswoldville Company has become affiliated. This was a gift from the directors, and the inscription tells of his 35 years of service. We

will discount a few weeks of this as our 35th reunion does not come till next month and we saw Joe get his diploma a few minutes before us in 1902.

Greenfield is getting to be an '02 center: Ballard and Deane Avery have long dwelt in that charming town and it now transpires that George Mather has taken up his residence there since his retirement from the Bell System nearly four years ago. George writes that he and Mrs. Mather are enjoying the friendly atmosphere of the town. George is added to our growing list of grandfathers, as his elder son, Judson Mather, is married and has two young sons. Judson is in the Boston office of Electrical Research Products, Inc., and resides in Melrose, Mass. Mather's younger son, Deane, is with the Biological Survey and at present is stationed in Minnesota. He also is married. As Mather has been "address unknown" on the files for the past few years, he had not heard of the coming reunion, but we have commissioned Avery and Ballard to bring him along.

Wendell Fitch, son of our classmate, Walter, was married on February 20 to Miss Gertrude Seagrave of Wellesley, Mass. They will make their home in Akron, Ohio, where young Fitch is a chemical engineer with the Goodrich Company. He was graduated from Tech last June in Course X. — FREDERICK H. HUNTER, *Secretary*, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, *Assistant Secretary*, 246 Stuart Street, Boston, Mass.

1903

Your Secretaries have the job of writing up news of the doings of the Class for The Review every other month. Our classmates are supposed to appear in the issues of the odd-numbered months. There was nothing to write for the March number, and to date, March 24, no news has come to our attention for this number. We have these alternatives: to remain silent, as we did last time, or to do what the Secretary of another class did at one time, *i.e.*, write a series of fictitious notes about what various members of his Class might have been doing. The result was a small shower of letters (you may imagine their tenor), which did give him something to acknowledge and record for the next issue. Your Secretaries may be forced to this extreme unless there is news forthcoming. We have tried writing personal letters to nearly a hundred members, with only fair results. The last we knew there were about 60 members who were subscribers to The Review, but we have doubted if many of those 60 ever read their class news. If those of you who do would take a few minutes to write a few lines to us, just saying that you read the notes and would like to see more and then take a few additional minutes to write a fellow classmate, suggesting that the rest of the class might be interested to know that he is still on the top side taking care of his regular job (whether or not he is prospering at it) and still has a bit of interest in M.I.T. and his old Class, it would put

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1903 Continued

a new heart into the Secretaries and renew a spirit of desiring to carry on back here where we are in closer touch with the Institute than many of you are.

Next year is our 35th anniversary, whether you like it or not. Shall we celebrate? Let us hear from you. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 89 Broad Street, Boston, Mass.

1905

A mysterious looking letter with an Egyptian stamp (which my ten-year-old daughter, a novice stamp collector, appreciated very much) brought news from Walter Bent, X, whom we had not heard from since the reunion in 1935. Walter was combining a business and pleasure trip at the time the letter was mailed in Luxor, Egypt. From there, with Mrs. Bent, he was flying to Palestine, thence by train through Syria to Turkey, Greece, from there to Belgrade and back to London. Walter has one boy in the United States (he isn't specific on this); another in Germany at the University of Berlin, after getting his degree at Cambridge; another boy at Queens College, University of Cambridge; a daughter at Wycombe Abbey (a girls' school in Bucks, England); and the youngest boy away at prep school. Since Walter was to have returned to London by March 15, your Secretary is trying to get him for our May travel talk. Just a few thousand miles is nothing to a globe trotter.

A letter from Hallet Robbins, I, metallurgical engineer with office at Glendale, Calif., brings a philosophy that many '05 men should adopt: "I have always believed that a man should plan to retire while still young enough to enjoy life, so I am at present what might be called semiretired. However, I still act as agent for the Oriental Consolidated Mining Company of Hokuchin, Korea, which I have served off and on, in various capacities, since 1905 and continuously since the beginning of 1928. I bought myself a house trailer last fall and plan to spend a good deal of my time in that henceforth. I note that date of June 4 of which you remind me, but I am afraid it will be a little too far to go to attend that reunion at Old Lyme. It really suits me better to make my visits to the East in the winter time, by train, so that I can take in the annual meeting of the American Institute of Mining and Metallurgical Engineers, held in New York each February."

Harry Wentworth's press agent sends us the story of his winter migration: "The latter part of February, Henry A. Wentworth, with his wife, embarked on one of the boats of the Panama Pacific Line for a little ocean trip around the Caribbean, covering somewhat the same ground that they covered nine years ago. Their itinerary will take them to the Panama Canal, and they will land at Acapulco to spend ten days in Southern Mexico. Later on they will spend some time around Corpus Christi, Texas, and arrive home toward the end of March."

Not to be outdone, Roy Lovejoy, IX, writes to tell us that he wasn't in attendance at the midwinter get-together in February because of being at his winter home in New Orleans. Some of us already have adopted Robbins' philosophy, apparently.

Someone asked at this midwinter meeting who Katharine Hepburn's mother really was in Tech. In consulting Ros Davis I find that she was Katherine Martha Houghton, a graduate of Bryn Mawr, who started a course in the Department of Architecture in 1902-1903 and shortly left to marry Dr. Thomas N. Hepburn, a Hartford physician. Now we won't have to ask Ros again until someone else asks about it or Sid disputes the authenticity. Which reminds us of a splendid accomplishment of Strickland's that ought to get him into "Who's Who." While Sid's inherent modesty has prevented our getting a proper picture of his part in the project, some of the details are obtained from a write-up in the Springfield, Mass., *Union* of January 27 as follows: "The contract for the \$200,000 house modernization job in Chicopee Falls sponsored by the State Board of Housing and aided by the Reconstruction Finance Corporation and Federal Housing Administration was let yesterday. The contractor and representatives of the Washington offices of the Federal Housing Administration and the Reconstruction Finance Corporation met with Sidney T. Strickland of the State Board of Housing in Chicopee Falls to sign the final papers. Twenty-seven red brick buildings, occupying five city blocks near the Chicopee Manufacturing Corporation, will be modernized. The Federal Housing Administration officials from Washington said this is the second project of its kind in the United States where the final rent will be as low as \$4.00 per room per month. The other case is in the South, for buildings without cellars. Yesterday Norman Smith of New Brunswick, N. J., the President of the Chicopee Manufacturing Corporation which was owner of the buildings to be renovated, signed a deed transferring clear title of all the property to the Chicopee Falls Housing Corporation."

"There are at present 150 apartments in the buildings. The modernization will increase it to 188. The units now run vertically, one apartment including rooms on several floors. When the modernization is finished, each apartment will be complete on one floor except for attic rooms. The Reconstruction Finance Corporation is loaning \$200,000 for the work. The loan is secured by a mortgage which is insured by the Federal Housing Administration. According to Miles Colean of Washington, director of the large-scale housing division of the Federal Housing Administration, this is the first attempt in the United States by a Federal Housing Administration-sponsored plan to rehabilitate standing property on so large a scale, Mr. Strickland said. Mr. Strickland said that the manufacturing corporation wanted to establish a non-profit corporation to handle the property,

but the laws of the state made no provision for it. Therefore, the limited dividend corporation is being made to serve in its stead. The only stipulation put upon the grant by the Chicopee Manufacturing Corporation was that the rent should not exceed \$4.00 per month per room." — We know that to bring all the different factors together meant an unlimited amount of work and ability. Sid started it while he was chairman of the State Board of Housing. He has since retired as chairman, but is continuing his membership on the board.

Ralph R. Patch, XI, writes from Altamonte Springs, Fla., that a combination of flu and arthritis sent him to sunny climes where he could look out on a golf course but not play. That must be the height of aggravation to Ralph. While absent he was elected to the school committee in his home town of Stoneham, Mass., and before he could get back to protest he was elected chairman, which, added to his other municipal jobs, just about makes him the whole show in town politics. Which reminds me that, being passed a ticket for speeding in Stoneham last year, I telephoned Ralph to get the lay of the land. He advised me to talk with the "Chief." I did, and sometime afterwards Ralph confessed that he had told the Chief to give me the works before tearing up the ticket.

Gene Kriegsmann, I, wrote on a post card (which he inclosed in an envelope because he didn't want somebody's stenographer to see the picture of the bathing beauties on the other side of the card) that having conquered all WPA and PWA projects in Rhode Island, he was called to Washington and is commuting from there to Florida (as beach inspector) but is helping F. D. R. plan things so he (Gene) will have an assignment near Old Lyme the first week in June. His address is (was) Alban Towers, 3700 Massachusetts Avenue, Washington, D. C. — H. M. Wilcox, X, joined the Westinghouse Electric and Manufacturing Company at East Pittsburgh in February as manager of the new products division, with the responsibility of developing the company's new lines of products. He is, however, retaining his home in New Haven, Conn. His address is University Club, Pittsburgh, Pa. He says he has had the pleasure recently of several games of bridge with Frank Chesterman. — Bill Keen, V, anticipated my threat to write to him by writing that he is very much improved in health, but not yet able to consider going back to work. Bill had a turn for the worse last September and admits (what we feared) that he felt he could not recover, but at the end of six months in a hospital bed, he believes he is over the hump and will see us on Alumni Day in June. That's courage and mighty good news. Every '05 man is pulling for you, Bill.

Edward Church Smith, V, uses a notice of change of address to tell us this much about himself: "As keeper of records of M.I.T. Class of 1905, kindly note the following change in my address: new

1905 Continued

address, 13850 Clifton Boulevard, Lakewood, Ohio; old address, 15713 Clifton Boulevard, Lakewood, Ohio. This branch of the Smiths appears to have weathered its 11th upheaval due to moving which has located it at the above new address. March, 1937, finds me still employed in the research laboratory of the National Carbon Company, Inc., at Cleveland, Ohio, and glad to be back at work. A setback in health last November compelled me to take a three months' layoff after seven years of good health. I have enjoyed the rather infrequent M.I.T. alumni group meetings in Cleveland when I have been privileged to attend them, but I never see any classmates in this region. Our son, Edward Fowler Smith, was graduated from Oberlin College last summer. . . . He is now taking graduate work in library science at Western Reserve University in Cleveland and hopes to find employment in library work next fall. I greatly regret my inability to get East to visit Technology and to meet with my classmates at Old Lyme, Conn. I did get as far as Boston in 1933, but had no opportunity to cross the Charles River. Give my regards to all the boys, especially those of Course V." From the fact that there are a lot of other '05 men too modest or too busy to keep us posted on their doings, we might suggest "it's your move."

Again the ranks are thinned. Francis B. Riley, II, died of heart trouble on February 26 at his home in Newton, Mass. He had known of the seriousness of his condition, but had said nothing, even to his family, so that his death appeared sudden and untimely. Through his brother, Joseph C., '98, now Professor of Heat Engineering at M.I.T., we get this bit of biography: ". . . He had many friends among the '05 men although he was at Tech for only two years. After that he went two years to Dartmouth. While in school, he was active in athletics and for several years he held the New England Intercollegiate record for the two-mile run. At one time he worked for the Telephone Company, and while with them he invented the first instrument used for automatic timing of long-distance toll connections. Previously such timing had been done by the operator writing down figures with paper and pencil. During the past ten years, he made several inventions relating to the weaving of fabric with strands running diagonally as well as lengthwise and crosswise. Previously, all fabrics having strands in more than two directions, like the cane seats of chairs, had been woven by hand. Looms built under one of his patents for diagonal strands are used for weaving fiber, or cane, in the manufacture of furniture and baby carriages. Others are used for weaving flat strands of wire into the various patterns known as Metalace, for radiator grills and other purposes." Frank Riley was a prince of a fellow. Sorry we hadn't seen more of him in the past 30 years.

While reminiscing with Andy Fisher on events brought to mind by the news of Riley's death, Andy brought back the

picture of the relay race which we won from '06. As we remembered it, Jewett ran the first leg followed by Riley, then Andy. Of course, with all that lead, the other men simply had to go through the motions. The other members, we believe, were Dickerman, Webster, Ingalls, Lee Faulkner Goldthwaite, Snow, Steel, L. Turner, Nichols, and Ralph Emerson. Incidentally, it "read queer" in looking back through the records to find that Frank Riley won third place in a two-mile bicycle race in a track meet with Dartmouth, Brown, and M.I.T. (1902). Remember it? In that same meet Emerson won second place in the 120-yard hurdles, Ben Lindsly third in the hammer throw, and Leon Morrill first in the shot-put. — FRED W. GOLDTHWAIT, *Secretary*, 175 High Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 209 Washington Street, Boston, Mass.

1907

The New York *Herald Tribune* of January 30 contained the following news item: "Six engineers and scientists of the department of sanitation, health and water supply, gas and electricity were to leave at 4 o'clock this morning on an American Airlines plane for Louisville, to aid the flood-stricken districts in the Ohio and Mississippi valleys in reconstruction after the flood waters recede. The unit will carry several testing machines to determine the amount of chlorination necessary to purify the water supplies along the flood route, and one of their number is a bacteriologist who will be equipped with apparatus to determine the types of disease germs present in suspected waters. The party will leave at the behest of Dr. Thomas Parran, Jr., surgeon general of the United States Public Health Service, who was informed several days ago by Mayor F. H. LaGuardia that the unit was in readiness to proceed where needed. Yesterday morning Dr. Parran telephoned the mayor and asked him to send the group to Louisville, where it is expected the members will split up into separate groups to survey the water supply of cities affected by the flood.

"The plane, a 21-passenger Douglas, will carry 12 firemen from Trenton, N. J., to the stricken territory to relieve tired firemen on duty, as well as the sanitation party, and three newspaper men. It was donated by the air line to help in the flood reconstruction work. The party included William T. Carpenter, sanitary chemist of the department of sanitation, graduate of Lehigh University, and had two years of postgraduate work at the M.I.T., formerly bacteriologist of the Cincinnati Water Works." Carpenter is affiliated with our Class in Course XI.

We are not *satisfied*, but we have to be *contented* with this one item of class news for this issue of *The Review*. — We can again mention most enthusiastically our 30th reunion at the Oyster Harbors Club, Osterville, Mass., June 4 to 7. It promises to be well attended. There can be no doubt as to the enjoyment of those who come. — BRYANT NICHOLS, *Secretary*, 126

Charles Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

Your Secretary is now back at the home office in Boston, having been located in Danville, Va., for about ten months on a hydroelectric project for the city of Danville, for whom his firm is the designing engineer. — Through the courtesy of Professor Charles Locke '96 we learn that Carl Gram made "a flying trip through Germany to some steel mills in Czechoslovakia," stopping at Leipzig en route. Carl apparently expects to return to London, where he has made his headquarters for several months.

On March 13 the 1909 men in New York held a spring luncheon at the Technology Club, at which H. E. Lobdell '17, Dean of the Institute, was the guest. According to Paul Wiswall: "Lobby was in his usual good form and let us in on some of the off-the-record things that a dean sees and hears — things that seemed very serious to us when we were sophomores but which now do not appear like immovable mountains. Lobby and all the other men from Cambridge keep telling us at these semiannual gatherings (composed of what I suppose the undergraduates would style old grads, indeed), yes, they keep telling us that there is more of the milk of human kindness at the Institute and I even suspect the presence of a little cream now and then. My happiest memory of that great teacher and friend, Arlo Bates — may his sweet soul rest in peace — was sitting in his front room at a window that projected over Otis Place, that crack between the buildings down there in the angle between Beacon Street and Charles. It was about 1915, and we could look over across the Charles and see the rising dome of the new Institute. I asked Arlo if he was anticipating the crossing of the River and the pulling up of the roots in Copley Square. To my surprise, he told me he was not going to Cambridge. 'They never will do such good work in the luxury of Cambridge as is being done and has been done in the bare rooms of Walker and Engineering A.' Far be it from me to try to make any comment in this matter. But there is no question about the effort to make the Institute more livable in these latter days.

"I almost forgot to say that Molly Scharff brought his boy, Samuel, to the luncheon. You may remember Samuel because he came to the 25th reunion with Molly. I think Samuel is taller than Molly and when you see them together you wonder what changes would be needed in designing Pullman berths if all the men were cast in the same mold as Molly and Samuel. Molly hinted that Samuel was thinking about entering the Institute. George Gray told us he has a son who is a freshman at Cambridge. We may have a Tech father-and-son luncheon one of these days.

"The Technology Club of New York had a dinner at the Waldorf on February 24 and of all the older classes, 1909 could

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1909 Continued

hold up its reputation with the best of them. We had two tables set aside for the Class. We were all very much pleased to see Tom Desmond once again. Tom is very busy at the Capitol in Albany, N. Y., these days. In fact, since his illness two years ago we have seen very little of him. He looks the picture of health and happiness and he admits that he is as fit as ever. In reading of some of the things that are done in Albany, I should say that New York state was fortunate in having Tom as state senator and that many districts might do well to try to get men like him to serve."

The Boston *American* on February 19 carried a very good photograph of Professor Dawes in his laboratory at Harvard. According to the report, Chet has made an important discovery which it is hoped may be the means of eliminating radio static. — Mrs. Angeline C. Wallis, granddaughter of Captain Hugh Hill, naval hero of the Revolutionary War, and grandmother of George E. Wallis, died, at the age of 98 years, on March 23 at her home in Beverly, Mass. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries*: PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

1911

Now is the time for all good men . . . gosh, that's not the way to start class notes . . . but maybe it is, after all. Certainly perusal of these notes will indicate that very few classmates have written to Dennie during the last four weeks of this mild winter just passed, so it *is* the time for all good men to write to Dennie.

Charlie Barker, whose winter trip East brought joy to the writer, got back to San Francisco O. K. — As luck would have it, Ernest and Bertha Batty called here at Hotel Bancroft to see me on my day off, so there was a nice little reminiscing party spoiled. — Correction: In the March class notes I unthinkingly attached the adjective Scandinavian to Maus W. Colebrook, V, when reporting the legal change of his first name to Moss. Norman Duffett's letter soon convinced me I had unwittingly classed him (Colebrook) with our foreign members, whereas Norm claims Scandinavian "applies to him no more than it does to me." Continuing, Norm says: "He spent most of his boyhood on Lake View Park near my old home in Rochester, N. Y. His father was president of the Rochester Candy Works for many years."

Just as spring comes a letter is at hand from Harold Davis, I, advising that his wife — Evangeline Foster Davis — is perpetuating a 115-year Foster family enterprise. Every spring she makes about 350 gallons of maple syrup on the Foster farm in Vermont. The orchard of 3,000 trees is ideally located, 40 miles south of the Canadian line. Classmates interested can address the Davis' at 10 Abbott Street, Nashua, N. H.

Dick Gould, XI, was one of six engineers and scientists to go to Louisville from New York City during the terrible flood. He is chief engineer of the New

York City Department of Sanitation. — Eddie Vose left New York on March 13 for his customary late winter vacation, sailing for a three weeks' West Indies and South American cruise on the United Fruit Liner *Ulna*. Maybe we'll have some movies (or even stills) available for our ladies' night this spring — right, Ed? — Bill Whitney, III, for many years with the Carrier Engineering Corporation in New York, joined the Creamery Package Manufacturing Company in early March and is located at 1243 West Washington Boulevard, Chicago, Ill.

Four hundred words — almost a new low in 1911 notes — but the proud record of always "making the section" persists. — ORVILLE B. DENISON, *Secretary*, Hotel Bancroft, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1913

Ken Hamilton, II, who has a son at the Institute, is vice-president of Knox-Morse Company, manufacturers of paint and varnish at Brockton, Mass. It has been nearly 25 years since I have seen Ken and this thought recalls that our 25-year reunion comes only a little over a year hence. Last June I learned that it is now the custom to feature the reunion of the 25th year class with commencement week at the Institute. Naturally this adds to the importance of our little party in June, 1938. The Class of '11 had a fine attendance last June, with some 80-odd men and quite a few wives. I sincerely hope that you who read this will start thinking about your prospects of being able to gather with us a year from this coming June. — Another class son at the Institute is Donald Waterman '39, son of Max, II.

The Alumni Office reports the following address changes: Frederic R. Barker, II, to 115 Pembroke Street, Boston, Mass.; C. Harold Hopkins, IV, to 416 West Eighth Street, Los Angeles, Calif.; Robert Schulze, V to 1115 Grove Street North, St. Petersburg, Fla. — FREDERICK D. MURDOCK, *Secretary*, Murdock Webbing Company, Box 784, Pawtucket, R. I.

1914

At the New York Technology Club dinner, held at the Waldorf-Astoria, February 24, Charlie Fiske reported that he was joined by Ross and Mrs. Dickson, Peb and Mrs. Stone, Art and Mrs. Peaslee, Bob McMenimen, Bill Warren, and Gus Miller. George Whitwell, who shares his allegiance with '15 and who has just been elected to term membership on the M.I.T. Corporation, was also present, but not at the '14 table. By the time these notes appear, Charlie will have staged another of his annual New York dinners. See next month's notes for details. — Walter G. Hauser has recently returned to New York, having joined the Chase Brass and Copper Company. — Leigh Hall of Concord, N. H., has taken to lecturing in behalf of the Institute. Leigh has been showing the Technology stroboscopic movies to local school groups.

Special extra! Dean Fales is on a diet and has already lost a quarter quintal, thus breaking 200 for the first time since six cylinders were the latest development in the automotive art. Perhaps Dean has been taking his safety work seriously. — Porter Adams has been in Boston much of the winter on leave of absence from Norwich University in order to build up his health a bit. Those who have had the pleasure of meeting Porter's mother will be sorry to learn that she has been confined to the hospital nearly all winter with a broken hip. — Commander Currier of the Navy has been transferred from the Navy Yard at Philadelphia, where he was radio matériel officer, to the Navy Yard at Cavite, Philippine Islands, where he is to be planning officer. Joe sailed from San Francisco, March 13, on a Dollar liner and expected for once in his naval life to spend 30 days at sea and loaf while doing it. He expects to be gone about two years.

Herman Affel was in Cambridge this spring, visiting Technology as a representative of the Bell Telephone Laboratories. On April 13 he made a return visit to speak before the Boston section of the American Institute of Electrical Engineers on the subject, "High-frequency Broad-band Wire Transmission." — Have you made your plans to be in Cambridge on Monday, June 7? You should try to be here because a most excellent Alumni Day program has been arranged and many '14 men have already signified their intentions of attending. — H. B. RICHMOND, *Secretary*, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

My plea in last month's column for news has brought an answer from reliable Jerry Coldwell, flying around somewhere on the Coast. I can always depend on Jerry, and I know the rest of you are glad to hear from him in his typically humorous strain. From Nob Hill, San Francisco, Jerry wrote: "Your sob in the last Review was quite pathetic, but what can one do when life goes on about as usual! At least my own does — you chase out to start a job, chase some other place to look over another, chase back to the office — and then do the same thing over again. I had dinner at the Harvard Club in New York Sunday night and out here Monday night. (That's hustling over the ground, isn't it?) The cable cars and the silver dollars both seem to be doing as good a business as they have been each time I have been out here, which number of times is getting to be altogether too many lately.

"Yesterday and today it rained hard — unusual weather this year according to the natives, but I am somewhat used to that by this time. Everywhere I go, if the weather is bad, it is 'unusual.' Maybe I cause it; who would know? I don't see many of the Tech boys, but I hope to be able to stop off in Memphis next week to see Chuck Loomis '16. I tried to see him a couple of months ago when I was en route from Birmingham to Chicago and

1915 Continued

again when I was en route from New York to Texas, but neither time worked out. We had a bad trip out here due to snow and low ceiling but finally arrived nearly five hours late. Hope to have better luck on the way back next week. Give my best regards to any of the boys with whom you come in contact."—You can see from this that Jerry is still an enthusiastic flyer, covering a great deal of ground, and is just as busy as ever.

Speed Swift is back in New London, N. H., from a recuperation in Florida. His funny post cards from there aroused my curiosity about the winter activities these big business men have down South. — Except for one or two distant points, all the territorial committeemen for our 25th reunion have very loyally and gladly accepted their jobs. This means we can have a good organization to build up our plans. We want your suggestions on what to do at this reunion and your advice on how we can be sure that every classmate will attend. Most important of all, we would like to raise a \$5,000, 25th reunion fund, and we are asking every classmate to give to this as liberally and generously as possible, spreading his payments over the next three years. Bear in mind there is no compulsion or contractual obligation regarding the succeeding payments. This is important, for perhaps some of us may start it enthusiastically but later be unable to make the other payments. The Class will gladly accept whatever you can give whenever you can give it.

You can see that a great deal of detail work falls on the committee and, therefore, we ask you to send in your cards and your checks as soon as possible. With this fund we hope to invite every man who perhaps at that time could not afford to come. We want to make this a big, successful, *self-paying* party, and with this money we can unhesitatingly invite and help the men from distant points who perhaps feel they cannot come. If there is any surplus, we could consider establishing a small fund or possibly donating a gift to the Institute. This 25th reunion is really a serious and important affair, and I urge you all to give the committee your loyal, generous, and enthusiastic support for the Class of 1915. — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline, Mass.

1916

Your Secretary's attention has recently been called to the fact that no mention was made of Jimmie Evans in the report of our reunion at Saybrook. Those of you who attended the affair know full well the important part that he played. Therefore, in this column your Secretary is making belated acknowledgment of his cheerful and untiring, successful efforts at our reunion last June. Our thanks to *Jimmie Evans*. Further with regard to Jimmie, I have the following communication: "I feel that you will be interested in knowing who attended the Technology Club of New York's annual alumni dinner at the Waldorf-Astoria, Wednesday, February 24. The bachelors were Dick

Ahearn, L. H. deLabarre, Steve Brophy, and George Mead. The following members were accompanied by the ladies: Bob Wilson, Phil Barrett, Bob Burnap, Harold Dodge, Jim Evans. The list of patrons comprised 32 Alumni. The Class was well represented by having Bob Wilson, Steve Brophy, Tom Holden, and George Mead on said list. Dick Ahearn was on the dinner committee and seemed to be all over the place at once. deLabarre seemed to be hot and bothered about getting a class luncheon organized for New York. I have heard nothing further about it. . . . The M.I.T. Club of Northern New Jersey is quite active. The last meeting in February brought out some 350 graduates. Charlie Fry and the writer were the only men present from our Class. . . ."

Having heard that Walt Binger led a party of sanitary engineers by airplane from New York to the Louisville flood district last February, I got in touch with him and asked for a story of his trip. The following is an abridged edition of an interview which Walt gave to a New York Times reporter on February 14. "An eye-witness description of the flood damage in Louisville and near-by communities and of rehabilitation activities now in progress was given yesterday by Deputy Sanitation Commissioner Walter D. Binger, who headed the contingent of sanitary engineers and bacteriologists, all city civil service employees, sent by Mayor LaGuardia to aid the flood-stricken area. As the flood receded, Mr. Binger said, houses were found to be coated with an inch-thick layer of oily mud. Furniture was ruined, and the plaster of the homes was in danger of falling. Windows had been broken by the force of the water, pianos were overturned, and chairs were found hanging from chandeliers.

"New York City's contingent of six sanitary experts and bacteriologists, whose work has been praised by Dr. Arthur McCormack, Kentucky state health commissioner and emergency flood director, arrived in Louisville just after the flood crest started to fall and went to work promptly. One sanitation department operating engineer, Wellington Donaldson, took the post of night engineer at the water pumping plant and did this tour of duty for ten days. Two others, with field testing equipment, toured the city, testing the potability of the subsidiary sources of water supply, the artesian wells in the hotels, breweries and distilleries which served as auxiliary centers when the city supply was limited to two or three hours a day. During most of the flood crisis, Mr. Binger said, the main pumping station of the city water system was a half mile out in the swollen stream, a floor and a half deep in water, its boiler fires extinguished. A Louisville water department engineer, however, solved the pumping problem. A river steamer and a barge of coal were moored to the side of the pumping station. The steam lines of the boat were welded to the steam lines of the pumping station, and for seven days the pumps, a dozen

feet under water, kept working, assuring residents of the flooded city of the rationed supply they received.

"After his first day in Louisville, Mr. Binger said, he concluded that the average citizen would be unable to rehabilitate his home for lack of how to do it. He reported this to Commissioner McCormack and, at the latter's request, wrote directions for drying houses. He gave his explanation over the local radio stations on two successive days. Later, at the request of the Red Cross, he condensed his explanation so that it would be printed on a placard. The Red Cross, he said, had 500,000 of these placards printed with the idea of tacking them to the doors of every house in the area. The placard warned persons returning to their homes to test the plaster, the plumbing, and the heating equipment. It explained how to dry the houses and warned that all water-soaked food should be thrown away. All city incinerators were flooded and out of commission while the river was above its banks, Mr. Binger said, thus creating a garbage disposal problem which was met by carting refuse to the one bridge which was high out of water and dumping it into midstream."

Other members of our Class in far-flung lands can well follow the example of our classmate, Joseph R. Minevitch, who has just sent your Secretary a post card from Moscow, dated March 10, which was received in Hartford on March 23. The message is as follows: "Greetings to you and all M.I.T. 1916 men. Have been here with Mrs. Minevitch since Christmas Day, in connection with erection and operation of alcohol plants. The vodka tastes better now." The post card was a picture of a very beautiful room, apparently done in mosaics, with a vaulted ceiling. The description of the room on the reverse side is printed entirely in Russian, and therefore I am unable to pass its message on to our classmates. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

1917

The Technology Club of New York held its annual dinner with the usual éclat but with less than the usual interference from the local representatives of 1917. The personnel of the group may have felt the soberizing influence of Frank Maguire, Dix Proctor, and a few others. We suspect that with 20 graduate years back of them, some of the New Yorkers are beginning to reach maturity. A round robin bemoaning the absence of the Dean was signed by Gus Farnsworth, V. Panettiere, Winthrop Swain, Enos Curtin, Frank Maguire, W. I. McNeill, G. B. Smith, and Dix Proctor.

The promotion manager of the Hotel Bancroft in Worcester, Mass., one O. B. Denison '11, sends a clipping from the Worcester Evening Post for March 18 announcing the appointment of Frank C. Howard as head of the department of chemical engineering at Worcester Poly-

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1917 Continued

technic Institute. His appointment marks a change following the retirement of genial Dr. Walter L. Jennings, former head of the combined departments of chemistry and chemical engineering. Professor Howard has been at Worcester since last September, coming from the University of Illinois — Walter F. Pond, state geologist of the Tennessee Division of Geology at Nashville, contributed another clipping — this from the *Oil Weekly* for December 7: "Richard T. Lyons, who has been vice-president in charge of the land and geological departments for Skelly Oil Company in Tulsa, has resigned to go to Houston, Texas, where he will become head of the land and geological departments of Tide Water Associated Oil Company. Lyons was born December 4, 1895, at East Weymouth, Mass. He attended the University of Maine, M.I.T., and Harvard University. His first position in the oil industry was as an instrument man and geologist for Sinclair Gulf Oil Company. From 1920 to 1921, he was geologist for Maracaibo Oil Exploration Corporation in Venezuela, South America. He was a geologist for Sinclair Oil and Gas Company from 1921 to 1923, when he joined The Pure Oil Company as a geologist. In 1924, he went with Skelly Oil Company as a geologist, and successively was promoted to district manager of the land department, head of the land department, and then vice-president and director, which position he resigns to go with Tide Water Associated Oil Company."

Nelson C. Works asks that we change his address so that his mail will reach him care of Paine, Webber and Company, 400 The Rookery, 209 South La Salle Street, Chicago. — Constance W. Dodge (Mrs. Barnett F. Dodge) has written an historical novel with a Scottish background, "Graham of Claverhouse," which was published by Covici this winter. It was reviewed favorably in the *New York Times*. Sales have been good for a first novel, and the publishers have asked her to write another novel for publication this fall.

Dean H. Parker of the Krebs Pigments division of E. I. duPont de Nemours and Company, writes from Newark, N. J.: "I am planning to be back for the 20th reunion this year in June and am looking forward to seeing all the boys then. It will be the first reunion I have attended in 20 years, and it is going to take an earthquake or something equally cataclysmic to keep me away."

For Dean's information and for others who feel similarly, Hamilton L. Wood held a meeting of the reunion steering committee in Boston recently and laid mighty plans.

And now a sad note: William Ayres Gray, Jr., died suddenly at his home in Elizabeth, N. J., on March 5. Bill had been my roommate at the Institute and those who knew him will know what a loss his passing must mean to his intimates. He had recently been associated with Walter T. Hall '19 of E. B. Badger and Sons Company on sales engineering work in the petroleum refinery field. The

Gray family had been one of the oldest and best known in the industry, and Bill was familiar with many phases of the oil business even before he came to the Institute. He was commissioned almost immediately after he received his degree (Course III) and saw hard service across seas. He received his discharge in July, 1919, as a first lieutenant in the Infantry after having served in the Anould sector, Saint-Dié sector, Saint-Mihiel offensive; Meuse-Argonne offensive, and the army of occupation at Trier, Germany. He received a divisional citation (General Order 81, 5th division): "First Lieutenant William A. Gray, Jr., 6th Infantry, having been wounded in the arm by high explosive on the night of November 9, 1918, in moving to the Bois-de-Mincil, near Remoiville and Jametz, refused to go to the dressing station and remained with his company, placing it in position. On November 10, 1918, he led his company through a shell-swept area into the Bois-de-Jametz. Upon the signing of the Armistice he reported to the first-aid station. . . . Lieutenant Gray displayed great courage and bravery under heavy shell and machine-gun fire and is deserving of the highest commendation." It seems probable that a touch of gas and exposure while in service may have been a major contributory cause to his early death. After the War he was employed by the Barnsdall Oil Company in refining operations at Barnsdall, Okla., and subsequently in petroleum engineering work that occupied him in Canada, Vancouver, and over a large part of the United States. He is survived by his wife, the former Katherine Partridge of Brookline, Mass., and two children: Edith and William A. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

Can the brethren appreciate the validity of a Secretary's predicament? In the March dispatches we recounted the legend that Charlie Tavener works in New Jersey, lives in Connecticut, and commutes daily across New York. We even went so far as to intimate that commuting is an acquired taste. On the testimony of a delighted native we further report that Charlie has moved. No, not to Montclair or Hoboken or any of the Oranges. He's moved from East Port Chester, Conn., to Old Greenwich, Conn.! Amid mealy reflections, your reporter is a benumbed man.

The ghost of church bells is borne faintly down the wind by the following item from the *Boston Post* of February 14 (appropriate, heart-warming date, that!): "A prepossessing bride of the pre-Lenten season was Miss Margaret Rita Lyons, Leslie School alumna and favorite member of the Proparvulis Club, whose marriage to Mr. Andrew J. Smith, alumnus of the M.I.T., was announced by her mother, Mrs. Thomas F. Lyons. At the Church of the Holy Name, West Roxbury, the ceremony was performed, Monday, by the Rev. David Keane, with subsequent reception at the home of the bride's mother. Miss Katherine Lyons

was bridesmaid for her sister, and Mr. Joseph Keane attended the bridegroom. After a honeymoon sojourn in the South, Mr. and Mrs. Smith are to make their home in Arlington."

Remembering how we used to weep quietly into a coffee cup every morning over the necessity of learning our French irregular verbs, Benjamin Whorf's interest in Mayan phonetics produces a sudden surrender to panic. On February 20 the *Boston Evening Transcript* headlined: "Connecticut Scholar Holds Key to Solve Centuries-old Mystery of Mayan Writings." The article goes on to hold up patches of Bennie's work for our uncomprehending inspection: "At the annual meeting of the American Anthropological Association, this young man from Wethersfield, Conn., Benjamin Lee Whorf, surprised his fellow research workers by reading off sentences from two of the famous Mayan books. Study of ancient languages began as a hobby with Mr. Whorf, and he has gradually become more and more engrossed in America's own prize puzzle, the writing system of the Mayan Indian civilization."

"Backing enthusiasm with technical training, Mr. Whorf has plugged at university courses to learn how the Babylonians and other ancient people constructed their writing systems, and he is now working as an honorary fellow at Yale. One of his reports on the Mayan writings was published by Harvard University. It is not correct, says Mr. Whorf, to think of the Mayan Indians as drawing pictures for their writing system. . . . 'The Mayan writing is phonetic,' explained Mr. Whorf. 'The Mayas used several hundred signs in their writing. It was rather like the cuneiform writing of Babylonia in that respect. So far, I have deciphered enough signs to spell out about 100 written words in Mayan texts. Using these words I have read certain passages in the Mayan codices, as the books are called.'

"One significant fact about Mayan writing, which his studies bring out, is that the Mayas often had several ways of writing the same word. Just as today we write 'through' or 'thru' and recognize both as the same word, or just as we might conceivably write 'coffee' or 'kawphy' and read them both the same, so the Mayas often varied their spelling."

— Nothing very unique about that, Ben. You should see our manuscript before being corrected by The Review stenographer (who cannot be even lured into a misspelling). Ben is special agent for the Hartford Fire Insurance Company and does this language sleuthing as a sort of natural outcome of the courses in chemical engineering he took under Doc Lewis.

Ray Miller caused us to be sent a check for \$100 put out by the New England Mutual Life Insurance Company. But, alas, it was only an advertising specimen calculated to give a preview of what any well-provisioned widow could expect. This leaves the gentle policy holder filled with gentle melancholy — or something not akin to costly groceries. — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136,

1918 Continued

M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, Assistant Secretary, The Thomas School, The Wilson Road, Rowayton, Conn.

1919

We wish to correct a typographical error in a recent issue. Abraham J. Williams, a member of our Class in civil engineering, is now General Abraham J. Williams, Vice-president of the Republic of Honduras, so if any of you are planning a trip to the tropics, don't forget Honduras! — I recently received such a corking letter from Marshall Balfour, VII, whom I haven't seen since the 10th reunion, that I am going to quote it practically *in toto*: "Your class letter of November 19 was an agreeable surprise and the sign of reviving spirit of 1919. I stopped my Association dues and The Review a few years ago in disgust at never seeing class news." (You fellows would be surprised how many members of the Class have told me the same thing.) "Since I promised to return to the fold when the Class returned to life, I must get back on the roll and also make an effort to contribute some news."

"Long years have passed and my 1919 *Technique* is in storage somewhere in the United States, so I can't check up on A. S. Richards. I remember one Richards, a sharp-featured blond, who was a commuter like myself. Whether or not you fit that description, you have my admiration and good wishes for assuming a tough job for which perseverance is not the least of the desired qualities. I hope you like writing and story telling better than most of us do. Just to give you something to shoot at, I'll add that I never missed reading Allan Rowe's [01] notes and those of Magoun '18. They were always worth reading, even for the outsiders. — I can't say much about other members of the Class because I've seen only one representative since the 10-year reunion at Marblehead in 1929: Early in 1933 I had a pleasant talkfest with Dean Webster in Boston. Therefore, to create news I must bring in the ego. If silence is a sign of modesty, I think 1919 should rate as a celebrated group. Although shyness may be a factor, I suspect that procrastination and a variety of interests play greater parts."

"To pick up the thread of my own story: A postgraduate session in the army was followed by two years of public health work in Europe and then by four years of medical study in Boston. By the end of this period a wife and two daughters had been acquired. In 1926 I joined the health division of the Rockefeller Foundation and have had this connection ever since. After a year in North Carolina, 18 months in Mississippi, and 18 months in New York City, we came to Greece in 1930 with the general orders to promote public health and to study the malaria problems of this country. There are up to 2,000,000 cases of malaria a year among the six-and-a-quarter million inhabitants of Greece; it is obviously a fertile field for study and application. I

serve as advisor to the ministry of health and am associated with the Athens School of Hygiene of the ministry. . . .

"Life in Athens is fairly pleasant. There is a small Anglo-Saxon colony and we have some good friends among the Greeks. (They are not all restauranters and fruit vendors.) Mycenae, Olympia, Delphi, Marathon, and other ancient sites are familiar to us and are shown to the newcomers who favor us with a visit. When one becomes adjusted to national temperament and habits, work goes along. Modern Greeks have a keen intelligence and are hyperindividualists; there is little spirit for coöperative effort and effective organization. We have lived through a democracy and a variety of political parties, a fair-sized revolution in March, 1935, and now a kingdom and a benevolent dictatorship. As for most persons, life proves to be a mixture of routine, occasional adventures, and the desire to create something. There have been a few thrills in the air, on sea, and on land, but then the difference between an incident and a catastrophe is sometimes slight. For routine, there is bridge (poor), cinemas about a year old, business correspondence, and budgets. What to say for creation? I suppose that I belong to the army which strives to increase knowledge, in this case on the subject of malaria, but whether the result may be classed as creative work is an open question. It is more likely and it will be equally satisfying, if my efforts in the training of individuals are more enduring. I have selected for fellowship study and have contributed to the training of some 20 or 30 doctors, engineers, and nurses, who may someday be responsible public health leaders in this country. For me, and I suppose for most parents, the greatest satisfaction is watching one's offspring grow and develop."

"I have returned to the United States twice since 1930; we have three months' leave each three years. Since summer is my busiest season, our leaves have been in midwinter and away from reunion period. The next time will be late 1938 or 1939, unless the discussed prospect of European war moves us sooner. There is a reasonable prospect of my being in the United States in June, 1939, and I hope that plans for an appropriate 1919 reunion will materialize. To see Oscar Mayer, Gene Smoley, George McCarten, George French, Tubby Sherman, and a host of others would revive pleasures of the past and be a stimulus for the future."

That certainly is a fine letter, and I hope some of the other fellows will follow Marshall's good example. — ARKLEY S. RICHARDS, Secretary, 26 Parker Street, Newton Centre, Mass.

1921

Now that The Review and the radio alike are sponsoring cranium-cracking problems, this column announces its entry into the field. The first five correct answers which are accompanied by five bucks and a wrapper from The Review or a facsimile thereof (the wrapper, not the fiver) will be entitled to free membership

in the Alumni Association! For a starter, ponder over this: The number of letters in our class fan mail is larger than the number of words in any one letter, and no two letters have exactly the same number of words. What's one of the letters about?

Deane Griswold utilized a portion of his February 22 holiday writing a very much appreciated news letter to Ray St. Laurent. Deane, the Mrs., and the four youngsters were just recovering from the grippe, and he confesses that, while catching up on his reading of our class notes, he felt the pangs of remorse at not having written of his recent doings. Formerly works manager of the Griswoldville, Mass., plant, Kendall Mills division of the Kendall Company, Deane is now assistant works manager of the Slaterville Finishing Company plant, Slaterville, R. I. — a larger and more diversified portion of the Kendall Company. His work consists largely of keeping everybody happy in both sales and production departments, between which he serves as the liaison officer. The family now lives at 8 Warren Avenue, Union Village (Woonsocket Post Office), R. I. Deane reports that he frequently sees Ben Fisher in Walpole but has not yet bumped into any others of the Class in his new location.

New addresses received include: Douglass E. Brown, 117 North 7th Avenue, Highland Park, N. J.; Robert B. P. Crawford, 2954 East 29th Street, Kansas City, Mo.; Edward M. Epstein, Ducilo S. A. Productora de Rayon, Berazategui, F. C. S., Argentina, S. A.; Arthur Esner, 1510 Pennsylvania Avenue, Miami Beach, Fla.; Howard L. Face, 452 East 83d Street, Chicago, Ill.; Charles L. Hutchings, 6724 Garden Street, Long Beach, Calif.; Maurice d. Kearney, 101 Blodgett Street, Manchester, N. H.; Theodore A. McArn, Cherau, S. C.; Rosimond M. Raphael, 129 Cliff Street, Norwich, Conn.; William J. Regan, % Charles D. Barney and Company, 14 Wall Street, New York City; Louis D. Striebel, 829 Phillips Street, South Haven, Mich.; Viviano L. Valdes, Tabasco 267, Mexico City, Mexico; Paul N. Anderson, Dahlstrom Metallic Door Company, Jamestown, N. Y.

Lacking a fourth biennial news item of vital statistics in the series received from the substantial gentleman of Manchester who learned all about laundries at our reunion last June, your Assistant Secretary has had to make up the deficiency in order to be assured of news to keep this column intact through the perilous recovery period. To be more explicit, February 28 marked the initial bow of Eleanor May Clarke, six-and-one-half pounds of Wellesley, 1958! Mrs. Clarke and the subdeb have just arrived home and all is well, thank you, except perhaps that four-and-a-half-year-old Alfred is more than just a little impatient that the growing process can't be accelerated so his baseball and tennis activities can be shared.

The Connecticut Yankee and your correspondent serve notice on the rest of you fellows that the character and quantity

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1921 Continued

of news in our subsequent seminars on these pages are squarely up to you! Send a letter now before old Colonel Bogey absorbs all of your spare time. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1922

As we write these notes, word comes from Heinie Horn that the first release of information on the 15th reunion is just about to be dropped into the letterbox. He informed your correspondent, over the long-distance telephone, that the place for the next rejuvenation of the youth of the Class has been practically picked. The location, convenient to both Boston and New York, is somewhere along the Connecticut shore of Long Island Sound. With a flare for mystery, Heinie is not revealing the name of the place at this time, and will probably run some kind of a contest, the winner to be the individual who most accurately guesses the distance (horizontal) between two points, one of which is the scene of the reunion, and the other a spot which Heinie has not yet picked. This may sound a bit baffling, but at any rate no Old Gold wrappers will be needed to enter the contest. The important thing is to send back to Heinie, as promptly as possible, the information he requests concerning the possibilities of your attending the reunion. It is equally important that, at the same time, you send in whatever small sum Heinie is going to ask for in his first broadcast, so that he will have funds to work with. As you can well appreciate, there is considerable work in organizing a reunion. I urge you all to make this task as easy as possible for Heinie by being prompt in replying.

Herewith is an extract from a letter from Herb Ham: "I was attending the National Paper Trade Convention at the Waldorf-Astoria during the week of the 22d of February. In looking over the daily calendar, I noticed that the Technology Club of New York was having its annual dinner. I decided to look in, and the result was that we had a swell miniature reunion of the Class of '22. Present at our table were the following: Frank Kurtz, Ray Rundlett, Clayton Grover, Harry Rockefeller, Dwight Gray, and Keith Robbins. A good time was had by all. I learned from Ray Rundlett that Heinie Horn is in harness as chairman for the 15th reunion and that we will have a notice shortly of the big event to be held early in June. With Heinie at the helm, it ought to be good. I expect to start on a trip around the country within the next week or two and will spread the gospel."

Ed Ash passed through Rochester a few days ago and we had a short visit together. Ed is located in Detroit and seems to be leading a very busy life, with several enterprises engaging his attention. — Again let me urge you to reply promptly to the reunion broadcasts, at the same time remitting the small sti-

pend requested, so that Heinie may be relieved of the financial, if not the mental, load of arranging for the biggest and best in the series of the 1922 reunions. — C. KING CROFTON, *Secretary*, United Eastern Coal Sales Corporation, 1332 Lincoln-Alliance Bank Building, Rochester, N. Y.

1923

The saddest part of writing these notes this month is the necessity of reporting the death on March 10 of Gerald I. Carper, VI-A, due to heart trouble. He died while bowling at the Waban Community Clubhouse. Gerry had been with General Electric's Boston office for some years and was president of the Producers' Council Club of Boston. I am sure his wife and three small daughters have the sympathy of all members of this Class.

The Technology Club of South Florida, founded recently through the interest of C. P. Thayer with some encouragement from your Class Secretary, has turned around and commissioned said Secretary its representative on the Alumni Council. This is an assignment I can truthfully report will be most pleasant. While on the subject of Alumni Council representatives, it has been somewhat difficult to keep a 1923 representative who was so situated that he could satisfactorily discharge its functions. Both Kitty Kattwinkel and Bob Hendrie have held this assignment since graduation but have reluctantly had to relinquish it. The chairman of the Boston group of 1923 men, Howard Russell, whose name was placed on the ballot this year, should be a happy choice. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, 96 Monroe Road, Quincy, Mass.

1924

The names of many '24 men appear in the latest Directory issued by the Alumni Association as taking active parts in the work of the Institute. Listed in order of their appearance are: Herbert Stewart, who represents the Pittsburgh Club on the Council of the Alumni Association; Douglas Elliott, Secretary-treasurer of the Southeastern M.I.T. Association at Birmingham, Ala.; Ingram Lee, until recently Secretary of the Technology Club of Northern Texas at Dallas; James R. Hancock, Secretary-treasurer of the Technology Club of Kentucky at Louisville; William Lamn, Secretary-treasurer of the Technology Club at Mexico City; Joseph M. Naughton, Secretary of the Berkshire Technology Club at Pittsfield, Mass.; Fred Hungerford, President of the M.I.T. Club of Central New York at Syracuse; and John Fitch, Review Secretary of the Society of the M.I.T. at Washington, D. C.

Appointed by President Compton as honorary secretaries and local representatives of the Alumni Association are: Bransford Crenshaw, Chillicothe, Mo.; Denton Massey, Toronto, Canada; and Edward Sheiry, Istanbul, Turkey. Your Secretary feels that there must be much

interesting news of class affairs in the hands of these members and herewith extends an invitation to them to "loosen up."

From Chile, we hear that Horacio Serrano is farming on a large scale, his address being Estacion General Cruz, according to latest records. — A welcome letter from Bill Correale incloses a clipping announcing that Gordon Harvey has resigned as park engineer with the New York State Department of Public Works to accept an appointment as assistant chief engineer with the New York World's Fair, 1939, Inc. — Rising rapidly as an architect in New York is Bill Delehanty, who, among other big jobs, is designing a new structure for Brooklyn College. — FRANCIS A. BARRETT, *General Secretary*, 50 Oliver Street, Boston, Mass.

1925

Glen Bateman writes from Johannesburg, South Africa, acknowledging a feeling of nostalgia at the thought of the good old He hopes to be coming to the United States in 1938: "America almost seems to be in a different world."

Frank Fricker in Detroit has the makings of a good reporter. He gives us re Soup Campbell: "John M. Campbell, X, lives in Detroit and is an engineer in the fuel department of the research laboratories section, General Motors Corporation. . . . He has been associated with other representatives of the automotive and petroleum industry in connection with research work on detonation and other fuel problems, and has taken a prominent part in this work. He is a member of the American Chemical Society and the Detroit Engineering Society. John has been married eight years and is the proud father of two boys, John M., Jr., six, and Robert, two. . . . His principal hobby is gardening and mowing the lawn, according to his report, but I think I can explain further by adding that he built a house last year and has doubtless been busy with the many little jobs which must be done in order to make a liveable place out of a new house. John has attended Tech meetings quite regularly and has served on committees in connection with our big meetings. . . ."

— HENRY V. CUNNINGHAM, JR., *General Secretary*, 43 Chestnut Street, Boston, Mass. HOLLIS F. WARE, *Assistant Secretary*, 25 Valley Road, Medford, Mass.

COURSE III

Professor Locke '96 has come to my rescue this month with a letter from A. S. Bruna who is now located at Stonehouse, Bishopsgate, London, E.C.2. Bruna writes as follows: "I worked for about four years in the nitrate plants belonging to Guggenheim Brothers, all the time in the mining end, until reaching the position of mines superintendent in the Maria Elena plant. This is a surface mining proposition, stripping the overburden by means of draglines and then mining with electric shovels. As regards tonnage handled, this is quite important, as when working to capacity, 15,000 tons of overburden and 25,000 tons of ore

1925 Continued

are mined every day. Since October, 1934, I have been working in the selling end of nitrate, in the European organization with London headquarters, as assistant to the general representative of the board in Chile of the Chilean Nitrate Sales Corporation, which is the body charged with the sale of Chilean nitrate in the whole world. It is very interesting work, entirely different from mining, and has given me the opportunity of traveling extensively in Europe and Egypt. Selling nitrate in Europe is quite different from selling in the United States where there are no restrictions and as a matter of fact it is just a straight selling proposition. On the other hand, in Europe there are many customs difficulties, licenses, quota restrictions, competition with synthetic nitrogen producers, all of which makes it a very complicated problem."

A change of address is noted for Mrs. Edith Chartkoff Meyer. She has left Cleveland and is now metallurgist at Camp Bruell, Senneterre, Quebec.

I received a surprise visit from Herb Taylor a couple of weeks ago. His headquarters are in Evanston, Ill., and he reports that the coal business is very good at present. However, most of his sales are in the Middle West and that accounts for the fact that he has not dropped in on us for about 11 years. Outside of business hours, he has a family of three boys to keep him stepping. — F. LEROY FOSTER, *Secretary*, Room 6-202, M.I.T., Cambridge, Mass.

1926

"The Slough of Despond" accurately describes your Secretary's morale as he opens the class-note folder this month in anticipation of preparing a lively, new chapter in our own Pilgrims' Progress and finds it empty. No, not quite empty: We pounce avidly on one small clipping that cuts through the sloughy lugubriousness with the news that Jay Goldberg heads a new laboratory established by J. P. Stevens and Company, New York, which we presume is a textile organization, as that is Jay's specialty and one in which he has acquired considerable reputation as a researcher. Without being handicapped in the slightest by the fact that he was one of the authors of the Tech Show, he has pioneered in extending research into the vast morass of common sense and rule of thumb that has pervaded the textile industry for a century. Until his present position, Jay was director of the research department of S. Slater and Sons, Inc., Webster, Mass.

Last month we delicately hinted at a possible class meeting sometime on or adjacent to Alumni Day. The Secretary would welcome information from any members of the Class who plan to be in Cambridge at that time; if they are coming to the Institute on Alumni Day and find themselves wandering disconsolately through its dim passages, he hopes that they will, by either accident or design, find their way to Room 11-203 (the office of *The Technology Review*), there to receive comfort, both physical and spir-

itual. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1927

This is the penultimate Review before our 10th reunion on June 4, 5, and 6 at Castle Inn, Saybrook, Conn. All of you have received bulletins originating with the reunion committee, which have described the delightful spot where the reunion is to be held. There is every promise of a most interesting and enjoyable meeting. The continuing solicitation in our bulletins has been supplemented in most cases by even more importunate urging through personal calls by committee representatives throughout the country, so that many of you may be a bit surfeit with reunion publicity. But we are not going to relent nor retire until we know you are coming or have the promise of an adequate excuse from every one of you.

We are not merely inviting you to a good time, but to an experience — one which cannot be repeated. The 10th reunion comes at a time when our ways of life have not diverged to the extent that we lack a community of interest nor have we acquired the fixedness of purpose or perhaps the fixed lack of purpose with the intolerance or uninterestedness that the next ten years are bound to impose. We have come through ten years which have been pretty lean for most of us and it appears that we have before us a period of expanding opportunity. We are of an age and have experience to make full use of these opportunities. What, then, could be of more value than the chance to see and hear of the experiences of those who have had training similar to ours and have used it to different purpose. Some feel, perhaps, that they have lost all contact with their classmates; we assure you that you shall not lack the camaraderie of good fellowship at Castle Inn. Ten years are surprisingly democratizing and the last ten have been extremely so. [This was sent by Joseph Hammond for the reunion committee.] — RAYMOND F. HIBBERT, *General Secretary*, care of Johns-Manville Corporation, Waukegan, Ill. DWIGHT C. ARNOLD, *Assistant Secretary*, Arnold-Copeland Company, Inc., 222 Summer Street, Boston, Mass.

1929

Your Secretary has just gotten back from Flint (March 24), where he tried to get in touch with Gratz Brown, II, but Gratz was in South Bend, Ind., for the day. However, other friends in Flint quote the fact that the labor situation was like a keg of dynamite there, though Chrysler seemed to be getting all the attention, at the moment, in Detroit.

Several weeks ago I spent a few days around New York and Philadelphia contacting truck accounts for that territory on tire engineering problems, but did not run into anyone. Next time I travel East I think I'll copy a few pages of addresses from the Register of Former Students so I'll not miss all connections.

We have it from the Boston papers that Jim Magenis, XV, was married to Miss Marjorie Joan Savage of Brookline, Mass., just before January 10 of this year. — From the same source we learn of the engagement of Adolph J. Dietsch, VI, to Miss Klea Louise Currier of Jamaica Plain, Mass. — New York clippings tell of the marriage of Frank Stratton, V, to Miss Myra A. Coffin of New Rochelle, N. Y., which took place in that city on December 28. As reported before, Frank is now instructor of music at Massachusetts State College in Amherst. No, there seemed to be no classmates among the ushers, so I guess Frank has dropped all his engineering background, now that music is his profession. — It was also reported in New York papers that Warren Walker, VI, is engaged to Miss Elise Sieker of Hawthorne, N. J., and was to be married early this spring. We take great pleasure in extending our congratulations and best wishes to classmates thus embarking on the sea of matrimonial bliss.

Though this announcement is about two years late, it has only just come to us: Johnny Macy, VI-A, is to be congratulated on the birth of a son, John Thomas, May 12, 1935. — Reports from London, England, indicate that David Graham, VI, has resigned his position as director of J. Walter Thompson Company, Ltd., which company he has been with since 1931. He had been made a director only last August. — Reference to our address files shows that our mining engineers have moved about the country and the world more than any other group. Probably Bill Hutchinson has had the largest number of changes in address, but George Walker is not far behind. George has just made another move, going about the first of February to the Christmas Copper Corporation at Christmas, Ariz., where he is carrying on the duties of mining engineer. This mine has been shut down during the depression, but recent advance in the price of copper warranted reopening; the shaft is being retimbered and the mine rehabilitated in general, so as to pursue active operations.

Nothing is more appreciated in these notes than a letter from one of you telling of your wanderings since we all left Boston. This month we are the fortunate recipients of two fine letters. Peculiarly, they are both from the end of the alphabet. Bill Whiting, I, gives us his story: "... Shortly before the market went haywire in 1929, I landed a job with the above outfit (Eastern Underwriters Inspection Bureau, New England division). My work consists of traveling about New England, inspecting sprinklered properties ranging from fish freezers to jewelry stores. A moderate amount of engineering knowledge is needed in connection with water supplies, fire pumps, building construction, and so on. We are supposed to know, also, all about all the hazards of all manufacturing processes and all types of occupancy which we meet. This makes the job more interesting and tends to keep a fellow from get-

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1929 Continued

ting bored with life, what with all the new ways of doing old jobs you fellows in other lines dig up.

"In 1932 I married Velma Everson, thereby qualifying for membership in that mythical association of Men Who Married Their Prom Girl. We have been extremely happy and our lives have been blessed by a daughter, Cynthia, aged three and a half. I have looked in vain for any evidence of a leaning toward research and have finally come to the conclusion that she will be better at other things than attending Tech. Perhaps it's just as well.

"In my wanderings I have come across one or two of our classmates. Larry Newman, I, is still in New Haven with the Southern New England Tel and Tel. He is married and living in Hampden in a new home he has built. Larry has a son, about four, and twins, about a year and a half. My memory is that the twins are both boys, but I haven't been down to see him since they arrived. Larry Defabritis paid us a visit shortly after his return from Germany. He taught for a year at school and then went with the York Ice Machinery Corporation. I had a Christmas card from him postmarked Washington, D. C. . . .

"Among other things, my wife and I have been playing with an eight-millimeter movie camera. If any of the other fellows are interested, we might swap a roll of film to see what the other fellow is doing. (The idea is not mine but was in The Review notes of a previous class.) I am still in my home town and will be glad to see any of the fellows who get out this way. . . ." — Thanks very much, Bill. We congratulate you on having taken pen in hand and given us that fine letter. Come again. You bet I'll look you up if I'm in Boston.

The following is a more or less personal letter from Joel Whitney, II, but it contains so much of interest on an engineer's experiences in the South during these depression years that I'm including it practically in its entirety. You will possibly note my error in the last notes where I quoted Joel's children as both girls: ". . . At present I am engaged as air-conditioning engineer for Keith Simmons Company. We handle the General Electric equipment, including oil furnaces for heating. I find the work very interesting, as it involves a wide range of problems, including steam distribution, air distribution, heating and cooling loads, pump applications, sales, installations, and service. Fortunately our equipment is of the best, and we have been successful in our application engineering, hence our service problems are at a minimum.

"I had quite an interesting time getting into this work. After working as foreman in a CCC camp for a year, the state forester (from near Providence, R. I., and a Brown man, James O. Hazard) recommended me to the National Park Service as project manager on a recreational use, submarginal land project. I supervised the acquisition of 3,600 acres near Nashville and started the development work, when I was transferred to Pikeville, in

the mountains. I set up a project there, optioning 6,500 acres. At that time — July, 1935 — the Resettlement Administration began messing things up, so I resigned to return to Nashville and private endeavor. After six months of odd jobs I finally ran into this air-conditioning work. General Electric was operating their own retail outlet here and their engineer seemed delighted to be able to put me on. Believe me, I was delighted, too, after two years working for the government and 12 months out of work, to say nothing of six months as an insurance salesman (?).

"The engineer in charge here was an excellent man from Stevens' 27 with several years' experience at Baker Smith and Company of New York City. He took me over the jumps, and, last July, when the franchise was taken over by Keith Simmons Company, saw fit to put me in as engineer. Believe me, most of that engineering work we groaned with at school has come in mighty handy. Mr. Welch, a salesman, is in charge of the department. Last year he was the fourth ranking salesman handling G-E air-conditioning equipment. I did about half of his application engineering. Our first job amounted to better than \$10,000, involving heating and cooling with modulated control in a large residence. We are still working on that job, but present indications are that we will enjoy a larger margin than we anticipated. In the meantime we have installed 12 oil-furnace heating plants, some complete, others conversion, and about 20 cooling plants, ranging from a 60 horse power theater job to various room coolers. One of the most desirable features of this job is that I rarely know my schedule more than a day in advance. I may be designing a system on the drawing board, calculating heating and cooling loads and fitting requisite equipment to these loads, pricing, obtaining bids for subcontracts, working with architects and owners on proposed installations, and working out knots in our installation problems. We do all of our own installation work except ducts, and occasionally steam fitting, when we are rushed. Our crew consists of two to six men and a foreman.

"I have met several Tech men in my various activities. Tom Keeling '07 is one of our competitors. Ira P. Jones '21 and Bill Colley '21 are architects. Fred Urban is connected with G-E at Bloomfield. There is a '29 man, H. E. House, at Knoxville doing some engineering. The local alumni club met last Monday [January 18] on the occasion of Professor Thresher's ['20] visit. We were sorry not to meet with Dr. Tryon again, but I am sure that all present felt that Tech chose an excellent successor. His relating of Institute events and aims was most interesting. — J. M. White, DKE, is one of my best friends in Nashville. He is connected with the Gray and Dudley stove work here and has been very active in all phases of their design and manufacturing problems. At present he has the enviable assignment of setting up and equipping a testing laboratory at his plant.

"Mary Daniel and I have a baby boy, aged 16 months. Mary Alice is four-and-a-half years old now, which makes us one of these fast-growing young families. We are all well and very happy and seem to be thriving under the strain of our very active lives. We often think of you and Judy. We surely envy you your fine home and are looking forward in the not too distant future when we can build. We both enjoy your splendid notes in The Review and appreciate your faithfulness in keeping them up so well. We are still looking forward to the miracle that may bring us together again. I do hope that you may be coming South and can plan to spend at least one night with us. You can be sure that if I ever get East again, I shall go through Akron to see you all. . . ." Thank you, Joel, for the résumé of your last few years around Nashville. You can bet Nashville will be a planned stop if I ever travel South.

I know we all enjoy such accounts of our classmates' activities as given above. Let's have more of them. It will have been eight years this June since we separated and few have given us any cooperation in these columns. Come on in. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

1931

On glancing over some of the returns of the reunion intentions of last year, I ran across the following from Eddie Abbott, under Comments: "Please encourage the gang to write so that The Review will be worth reading every month." It seems that the theme song of a Class Secretary is "Please Write," but all in vain — almost. Incidentally, Eddie is married and living in Chicago. According to the latest information at hand, the Abbott family is just Mr. and Mrs.

Some news from the western part of Massachusetts via Fred Brooks: Bob Price is with Package Machinery Company in Springfield as purchasing agent. — Don Loomis is also in Springfield, with the Socony organization in their maintenance department. — Art Demars has been in various sections of the Berkshires during the last couple of years with the CCC and is now captain of the camp at Millers Falls. Art says that anyone traveling in his vicinity is more than welcome to stop in and chew the rag or, if it happens to be dinner time, chew on one of those famous "builder-upper" CCC messes.

Miss Alice E. Mills of Belmont and North Marshfield, Mass., became the bride of Albert R. Pierce, Jr., on February 14. Daniel D. Strohmeier '34, was the best man. Mr. and Mrs. Pierce are now living in South Dartmouth, Mass. — Dave Goodman was recently married to Miss Sylvia Hausman of Dorchester, Mass. Following a wedding trip to Cuba, Mr. and Mrs. Goodman are living in Brighton, Mass. — Another February wedding was that of Henry D. Addison to Miss Louise May Alcott of Watertown.

If any of the Class who are coming to the Alumni Day festivities (June 7) want to arrange to have luncheon together or

1931 Continued

have any other joint activity, I will be glad to arrange the details and let you know about them by mail. Just drop a line and start the ball rolling on a sixth-year reunion. — BENJAMIN W. STEVERMAN, *General Secretary*, 11 Glenland Road, Chestnut Hill, Mass.

1932

By this time you should have received the detailed information on our reunion plans for the 5th and 6th of June. But in case you were overlooked (which wasn't intentional) or in case your mail hasn't as yet caught up with you, here are the gory details: After carefully investigating many locations within 100 miles of Boston, your committee finally decided upon the Toy Town Tavern, just 65 miles northwest from Boston, in Winchendon, as the best possible reunion rendezvous. The Tavern has every facility available to make our reunion not only outstanding for the Class of '32 but outstanding amongst all Tech reunions.

There is no need to mention that golf, swimming, tennis, baseball, 19th hole, and even horseshoes are available — for with the banquet Saturday evening and the renewal of old friendships a thoroughly enjoyable week-end is promised. Those who are interested in any further details on the reunion should contact Tom Sears, Jr., 31 St. James Avenue, Boston, Mass. — CLARENCE M. CHASE, Jr., *General Secretary*, 410 Church Street, Bound Brook, N. J. CARROLL L. WILSON, *Assistant Secretary*, Research Corporation, 137 Newbury Street, Boston, Mass.

1933

This time next year, we will be making our final preparations for the five-year reunion of our Class. It hardly seems possible that four years have gone past so fast, but some of you fellows can surely move around in that short space of time. Will you, therefore, please help us put our address files in good order by dropping us a line from wherever you are, telling us where you are and what you are doing? We will certainly appreciate any information from you. Also, while we are on the subject, reserve the date for June, 1938!

Our news this month is again quite limited, but we do have the announcement of two marriages: that of William Leo Walsh to Miss Grace Ann Croshaw of Albany, N. Y., where they are making their home after a wedding trip; and that of Ed Coe to Miss Marjorie Kent, at which Dave Treadwell and Hart Cirker were members of the bridal party. Ed is a chemical engineer at the plant in West Orange, N. J., of Thomas A. Edison, Inc., and is living in New York City. — As this is being written, the latest flash on the whereabouts of Bill Huston is that he is in England on a special mission for the Oxford Group, but plans to return to Calibron Products, Inc., about May 1. — GEORGE O. HENNING, Jr., *General Secretary*, 330 Belmont Avenue, Brooklyn, N. Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-107, M.I.T., Cambridge, Mass.

1934

News while it is news — a few months late but still news: Charlie Barrett, III, sends word in a fine letter, that the boys from Springfield, Mass., are beginning to spread out. Johnny Westfall, X, the former boatman with the big muscles, is working with the Linde Air Products. Raymond Jewett, I, and George Patch, I, who married sisters, are also with Linde in the welding division. Jerry Ansel, III, has been very satisfactorily progressing with the metals research laboratory of the Carnegie Institute of Technology. He has written several papers for the American Society of Metals and the American Institute of Mining and Metallurgical Engineers. Stan Bebler, XIII, is with the Bethlehem Shipbuilding Corporation at Fore River, Quincy. He married a Quincy girl (name unknown to us) last summer. Tom Donlan and Charlie Wright, XIII, are also at the yard. The Secretary would like to see one of the Fore River crowd in Boston at lunch some day if possible (HANCock 3700). Ted Kresser, X-B, is still in Springfield with the Fiberloid Corporation. Charlie Barrett goes on to say that he is now working with the Anaconda Wire and Cable Company on metallurgical research. Charlie Bechle, X, Larry Ebel, VI-A, and Carl Boytano are also there. King Crosby is busily engaged with the Reynolds Metals and spends some of his leisure time in an outboard motor boat around Asbury, N. J. Harold McKay, III, is at Fairfield, Conn., with the Aluminum Company of America. He is reported almost married, though I have not as yet received the name of the young lady. I certainly want to thank Fred for the fine letter and hope that he will volunteer more news from time to time.

Herby Plass, VIII, sends in a card to the effect that: "Kingman Crosby was married on the 20th of February in Manlius, N. Y., to Charlotte Cheney, the tall blonde from Radcliffe. He stood up and took it like a man; I was there but he needed no support. He's now living in early marital bliss at 909 Ninth Street, Huntington, W. Va. King is working for the International Nickel Company after a change from the Reynolds Metal Company."

Charlie Parker writes of his work at the Iron and Steel Institute where he is secretary of a technical committee engaged in the standardizing and defining of steel products. He is at the same time writing many articles for the steel industry periodicals. Charlie has been married for three years and is the father of a member of the Class of '57 at M.I.T. At present the 1957 graduate is taking a seminar on the internal operation of a Teddy bear. The Teddy failed to recover. Charlie sees Harry Eagan, Charlie Lucke, and others now and then in New York City.

From San Francisco comes a letter by Phil Walker stating that there are four states into which his work has not taken him as yet. He is in charge of engineering and inspection work for the United

Mutual Fire Insurance Company of Boston. His territory comprises the 11 Pacific states. Phil hasn't married yet but he may be rather near to it. Phil and I enjoyed a very interesting and "instructive" trip through Europe.

Out in Urbana, Ill., we find Rene Dubois, XV. Rene has traveled the world over in the last two years collecting data on foreign mining properties and selling them himself. He met Johnny Holden, X-B, in Montreal where the latter is teaching and taking his doctor's degree. Max Levy, VI, is now with the export division of the Carrier Corporation and is marriage minded at present.

Herby Andrews, X-B, is in development engineering for the Edeleanu Company, Ltd. He is living at the "Y" in Flushing (in the event that any '34 Flushingites don't know this already). Jink Callan, XV, writes me from Toronto that he, G. C. Pearson, and Ed Geitmann had a great time together up in the Maple Leaf Nation. Jink is holding down a fine job now with the Foxboro Company as an outside supervisor of paper mill control apparatus sales. Foxboro apparently can make a control for everything that is controllable.

Our press service says that Miss Dorothy Boomer was married on March 20 to H. Neal Karr, II, of Washington, D. C. Neal is now in Waterbury, Conn., with the Waterbury Paper Box Company. The *Boston Evening Transcript* tells us that Dr. and Mrs. P. S. Fiske of Hartsdale, N. Y., announce the engagement of their daughter Eleanor to David A. Mooney of Fall River. Miss Fiske is a graduate of Simmons College. Dave is at M.I.T. connected with the Mechanical Engineering Department. — I wish you all a pleasant summer and success in the plan of forming local 1934 groups. — WILLIAM G. BALL, Jr., *General Secretary*, 18 Ware Street, Cambridge, Mass. ROBERT C. BECKER, *Assistant Secretary*, South American Development Company, Apartado 655, Guayaquil, Ecuador, S. A.

1935

Not a letter have I received this month; consequently, no news! If you don't like it, you'll have to admit it's your own fault and drop me a line. — Any classmates present at the Institute on Alumni Day, June 7, will meet in the west lounge of Walker immediately following the senior class exercises in the afternoon. See you then. In the meantime, wake up to the fact that this column needs your support. — ROBERT J. GRANBERG, *General Secretary*, Hamilton D-32, Soldiers Field, Boston, Mass. RICHARD LAWRENCE, *Assistant Secretary*, 111 Waban Hill Road North, Chestnut Hill, Mass.

1936

Although I have a pretty fair stack of letters by my side, I want to remind all the members of the Class of Alumni Day, June 7, before we get down to business. Already many members of the Class, especially those near Boston, have signified their intentions of attending. In fact, we are considering an added attraction for

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1936 Continued

the 1936 men to take the form of a get-together at some spot in Boston before the banquet at the Hotel Statler. See you then?

On March 13, the XYZ Club, a group of men from our Class who had lived in the Dorms, had a supper meeting at the Old France, followed by a Victrola dance at Walker Memorial. Of those who are around the Institute every day, Bob Sherman, Bill Saylor, Ed Halfmann, and Ed Everett attended. Dor Shainin drove up from Connecticut to bring Brent Lowe with him. Clax Monro was on hand to report that he was closing in on a new position. His job with the Guaranty Trust Company of New York did not have the future for which he hoped. Bill Nichols and Stan Smith were together again to tell how Bill has been running battleships backward, up and down the coast of New England. Seems that this is part of the tests they must undergo before acceptance by the Navy. Dick Odiorne also joined us and said that he hoped to make a trip to Yellow Springs, Ohio, in April to pay his quarterly visit to his fiancée, Miss Louise Harris. Elliott Robinson missed the supper but succeeded in arriving in time for the dance. Others who were in attendance must excuse my poor memory for their not being mentioned. Well, throughout the evening, the boys remembered that any intimate news they divulged would immediately be repeated in the class notes. Result: no news. We did hear, though, that Sam Loring is doing very well with Chance-Vought Aircraft in the structural department. Spends his time figuring buckling strengths and reading books on elasticity. Brent Lowe promised a letter if I would not write any more news about him. No letter as yet, but I'll give him another month!

Courses I and XI. By way of the Chi Epsilon News Letter we've gathered a little bit about this group. Most important is the news about Al Bagnulo, who has received a regular commission as second lieutenant with the United States Engineers. He was stationed for a while at Fort Wright in New York, but is now at Fort Dupont in Delaware. Al originally went with the Coast Artillery on a one-year provisional appointment, but this fall he took the exams for a regular commission with the Engineers. How successful he was is shown by the fact that he was the only man from New England to receive one of these commissions. — Ariel Thomas, of course, is still out at the University of Illinois as research assistant in sanitary engineering. He gives his address as 807 West Nevada Street, Urbana, and is looking forward to his return to the East in two years. Ariel continues: "Tech coeds aren't so bad. A notice here said that 98% of the Illinois girls are beautiful, and the other two per cent go to the University. The description of the two per cent is good, but the other 98% should be reclassified with the two per cent." I hope none of his local flames reads this! Ariel has joined Gamma Alpha, a graduate

fraternity, and Mu San, Sanitary and Municipal Engineering Honorary. — Bernie Gordon writes from the United States Engineer office in Concord, N. H., where he holds the position of assistant to the engineer in charge of the soils laboratory, who is Reuben Haines'34. He is now engaged in the preliminary design of earth dams, work which is both interesting and complicated.

Elliott Robinson has been seen recently about the Institute where he was engaged for several weeks helping Professor Bitter of the Department of Mining and Metallurgy in the design of an extremely powerful electromagnet. Elliott does some drafting and general handy work. An interesting side light on the power of this magnet is that it must be operated so that it is not facing any large mass of steel; the contrivance is so powerful it would tear itself apart by the force of attraction. — Frank Berman is also around school and spends his spare time assisting in the operation of the differential analyzer with Bill Prudente.

Course VI. The differential analyzer has also seen Nick Lefthies and Champ Norton recently. When I met Nick a short time ago somewhere along the miles of Institute corridor, he gave me the following letter from Tage Stromberg, Barkaro, Vasteras, Sweden: "After my graduation, I traveled across the United States, visiting the factories and power stations, and be sure I had a great time. After my arrival in Sweden, I got a job as designing engineer at the Asea Company, Vasteras. As regards other news, I can't say I am married yet, but I have got engaged and that is pretty good." Right, that is pretty good!

Course VI-A. We'll have to excuse the dearth of news about this Course for once because Mart Gilman, Course Secretary, has been very sick with pneumonia. However, he recovered in short order and is now back in circulation and looking forward to starting work soon with the General Radio Company. Our only news, then, is that Charles Hobson has been engaged as a student engineer by the General Electric Company at Schenectady, N. Y. He reported for duty January 25.

Course VI-C. Jack Cook writes in a big hurry to confirm last month's rumors: "Harry Pekin has been with the Tung-Sol Lamp Works of Newark, N. J., since the first of the year, doing design and development work on radio tubes. He and his wife are now living at 41 Willow Street, Brooklyn, N. Y. — Joe Gratz is with Columbia Broadcasting System as sound engineer and making plans to out-Woolcott Alexander Woolcott on New York's high fidelity broadcasting station WQXR. — Louis Adams is in the laboratories of the Norwalk Engineering Corporation, South Norwalk, Conn. They make coils for radio receivers."

Course VII. Ed Pratt writes from Vanderbilt Hall, Harvard Medical School, Boston, Mass.: "This term I am not so busy as before and hence I hope to be able to supply you with more news. I have heard from Stan Robbins, who is at

Tufts Medical School, where he has done exceptionally fine work so far. He wrote that Mel First is in Detroit working for the industrial hygiene department of Chrysler Corporation. — Stoloff, Steinhurst, Abdou are back at the Institute, and Stan Freedman has given up the job he had, in hopes of getting into public health work. — I had a letter from Ralph Mankowich last month. He is at Boston University Medical School and is another Course VII man who is enjoying medicine, especially the clinical correlation courses. He has joined the medical corps of the Reserve Officers Training Corps and likes that especially because there is no drill. — In February I attended the Delta Omega dinner and saw some of the professors and present students in Course VII, but there seemed to be a great lack of the Class of '36. Since it was a fine meeting and a very pleasant evening, I hope that next time more of the representatives of our Class will go."

Course IX. Henry Cargen may not have time to write letters, but he certainly doesn't spend all his time in New York, either. He is scheduled to marry Miss Barbara Lumsden on June 19. Looks as though our class baby is getting the jump on most of us. I know this date is correct because I got it from the proposed best man, none other than Al Horton. — In the absence of any word from Smokey, then, one Tom Nelligan, Hamilton Hall, Soldiers Field, Boston, decided to do something about it. He says: "I have been attending the Harvard Business School since fall and so have managed to keep pretty well out of trouble. During the summer, I worked as an assistant to the engineer in a CCC camp near Fall River, Mass. When I enrolled here this fall, I ran into Allen Taylor, XV, and am rooming with him at present. There is one other man from our Class here, Carl Mapes, X, and John Hayes, III, entered for the extra session which began in February. We had our midyears early in February and all came through by comfortable margins — our superior training, no doubt. — That human dynamo, Phil Ober, II, is now working for Graton and Knight, a leather belting firm in Worcester. Laddie Reday is also connected with that company, being located in Cincinnati, Ohio. He is in the sales department and doing remarkably well. Ober has an engineering job and is amazing his superiors with his remarkable grasp of the subject. I see him about every week when he comes to Boston. He invariably has some minor little engineering problem which he wants me to solve for him. I'm always very generous about it because, after all, he has to impress his bosses and it's all for the greater glory of the dear old Institute."

"Art Jaeger is working for R.C.A. radiotron division and has been foreman of his department since the middle of January. Henry Johnson is with an investment house in Boston: Newton, Abbe and Company. Doug Cairns is with Donnelly Advertising and is making very satisfactory progress, having had

1936 Continued

two promotions to date (so I hear). Frank Schoettler, XVII, is working for his father in the construction business in Kentucky. Charlie Endweiss is at Pensacola, Fla., in the Navy aviation corps and at latest reports had soloed and was working up to bigger ships. Bud Winsor is also a cadet at the Naval Air Station at Pensacola. Norm Copeland is studying in Zurich, Switzerland, but the name of the university escapes me. Dave Varner is working for American Airlines somewhere in Virginia or Washington. Mal Holcombe is now at Harvard Law School and spends most of his time at Wellesley, which is nothing new. From Allan Taylor I hear that Harry Hazelton, XV, is with Lambert Pharmacal Company in St. Louis, where Jim Grové is working at the Grove Laboratories. Bunk Knudsen is at work in Detroit at last reports, and his side-kick, Spence Mieras, has developed a new type of plastic which, my stooges report, is quite something. That seems to be all I have to offer at present. Life goes on while Taylor and I rot among our musty volumes. I am now sending my stool pigeons out on another quest and hope to have something to report in the near future." Thanks for all the news, Tom, and we'll be waiting for your pigeons to report again.

Course X. After writing a whole page about how his conscience has been pricking him for not writing sooner (we wish Cargen and Garth had similar consciences), El Koontz finally begins to let us know that he has moved from Cleveland to Philadelphia where his address is Reliance Electric and Engineering Company, 112 South 16th Street. He continues: "Here in brief is the story. Harry Essley and I finished our eight months' training course with Reliance the beginning of February and are now engaged in chiseling out our respective niches in industry. Harry stayed on in Cleveland to go into our methods and standards department at the plant. The title is self-explanatory and Harry is apparently enjoying his work immensely. I was sent on to our Philadelphia district office in the capacity of sales engineer and likewise am getting a big kick out of the work. By way of explanation, a sales engineer with our company is supposed to work out and sell whatever electric motor drives he is able to get a crack at. Although he has, of course, as a backing the combined technical and engineering advice and experience of everyone connected with our company, in a sense there is a certain independence and responsibility to the sales end that makes the work exceedingly fascinating. In the short time I've been here at Philadelphia, I've been making calls at everything from steel mills to paper plants and from glue works to navy yards. You can see I'm getting a chance to dig up a lot of interesting and valuable information. The fact that my boss is out traveling most of the week and that I consequently handle a great deal of his office work on quotations, estimates, specifications, and so on, is giving me a chance actually to get in some of the engineering end,

since the sales to my own particular customers have not as yet given rise to much call for engineering." El says the situation seems to be ideal, but he has been working so hard he hasn't had a chance to get acquainted around Philly and is getting bored with "Live Alone and Like It."

Turning to news about other members of the Class, El writes: "You probably know that the engagement of Fletch Thornton, XV, to Peggy Kendall of Smith College was announced on New Year's Day. Unfortunately, Gordon Thomas, XV, was the only one of our old crowd on hand to bolster up Fletch's morale, although Gordon, Pete Grant, Milner Wallace, VI-A, Johnny Austin, and I, and a number of other people, wished him well at a reunion we had in New York the night after Christmas. Incidentally, since coming East again, I had a chance to see Gordon Thomas and Towers Doggett at Milford, N. J., where they are working at the Riegel Paper Corporation. They both seem to be healthy and happy and enjoying their work, although just a little bit weary of being cooped up out in the sticks. (Look up Milford on the map sometime.) Also, before I forget, Fletch writes me that he's recently been promoted to foreman of the bar-cutting department of Procter and Gamble's St. Louis plant. I've also seen Nate Ayer, XV, recently. He's still at York, Pa., with the York Ice Machinery Corporation doing time study work with the expectation of shortly going into the estimating department. Jack Kleinhans, X, writes me that he is working for the J. T. Baker Chemical Company at Phillipsburg, N. J., and is having the time of his life, both working and learning the business at a terrific rate. My best letter of the month was from Ford Boulware, III. Among a lot of other things, he says that he has now been promoted in his mining activities to the job of drilling and blasting and as yet God has been with him and the mine hasn't caved in. (Ford is at Bingham Canyon, Utah.) He also notes that he has just survived a round with the income-tax collectors and has come out with a deficit of \$1.05. The Boulwares and Morgans are supporting the nation! Boulware passes on the rumor that Tommy Johnson is engaged. — Wendell Fitch is working at the B. F. Goodrich Rubber Company in Akron, Ohio, making chemicals for use in the rubber industry. As assistant to the production manager, he is doing both production and control work. No news, I believe, has appeared in the column, but should, of Wen's engagement to Gertrude Seagrave of Wellesley, Mass. The wedding is to take place next summer, he hopes.

"Andy Brisse apologizes for his tardiness in writing because of the steel prosperity. Andy is with the Carnegie-Illinois Steel Company at Pittsburgh and holds down a position with the imposing title of chief research chemical engineer. Andy claims that he's been kept busy studying in order to keep up with his job, and the only dark cloud on his

horizon is the soot that settles on the foam of his beer. — Pete Weinert certainly has something to write about. He's working for the Universal Oil Products Company at East Chicago, Ind., and some time in December was caught in a flash back from one of the fractionating columns. He was so badly burned he spent six weeks in the hospital and then was given a leave of absence for a month. When he went back to work a short time ago, he had a promotion to operator's assistant. Evidently quite a job with a lot of responsibility in running a thousand-barrel distillery and cracking plant."

El promises to pass along any news as fast as he gets it. We do have a little bit more by way of Gus Chandler, one of the group of assistants in the chemistry department. Gus tells us that both L. C. Smith and Mike Lach are in South Charleston, W. Va. Smith, having been recently married, is working for Carbon and Carbide, and Mike is with Dupont.

Course XIII. Art Wells was so anxious to get the following news in the class notes he had to send it airmail; you can well see why: Art Mayo writes that Dave Cooper and wife are the proud parents of a son, James David, born on March 12. Congratulations to Mr. and Mrs. Cooper — also to son Jim. Dave is working in Bath Iron Works' hull department and Art Mayo is located in the engineering department. Both were fortunate enough to take part in the official acceptance trials of the destroyers, *Drayton* and *Lamson*, last summer. Art speaks of the progress on Vanderbilt's cup-defense candidate, *Ranger*, now building at the Bath Iron Works. Her plating is practically all in place, and Art says she is a beauty. We would give a lot to watch her slide into the Kennebec. — Al Hardman has come ashore from the *Scanstates* of the Mooremack Gulf lines, is now working in the freight department of Moore and McCormack Company, Inc., in New York. He has joined Jack Stapler and Harrison Woodman in their bachelor apartment at 171 West 12th Street.

Course XIV. Jack Hamilton pleads that the reason he is such a poor correspondent is partly the season of the year, several trips home, and the added pressure of business and "extracurricular activities." Examples of the latter are the numerous bridge games in which our friend is now participating. After four years of rigid abstention from the degrading influence of Culbertson *et al.*, Jack has now become as bad as the worst. As for business, he is still at that secret research for Union Carbide at Niagara Falls, N. Y. But what the season of the year has to do with it, I can't imagine! Jack has little news about the Course but says: "Dick Hitchcock is the only one of the gang to exhibit signs of life. His marriage to Miss Ruth Robertson of Belmont took place as scheduled on February 12, and after a short honeymoon — part of it in New York — the folks are having a swell time keeping house at 104 West Embargo Street, Rome, N. Y. Dick

Plan to attend Alumni Day at M.I.T. on June 7, 1937

1936 Continued

is still very much interested in his work on corrosion and physical testing and expects to stay with Revere for some time, and who would blame him? Haven't seen Robinson for several weeks and have no news of the rest of the gang."

Course XVI. I was surprised a short time ago to have Bus Schliemann drop in for a visit with me at the Graduate House. The Chance-Vought Aircraft Corporation had some wind-tunnel work to be done here at the Institute, and Bus had managed to be sent up to help. He spent almost two weeks taking the data and plotting the results. Unfortunately the company was anxious to get the job done, so Bus spent his evenings working, too. However, I did manage to get him to write about some of the news he has gathered in his travels between here and East Hartford: "I had a long letter from Web Francis, giving news and corrections. First it was not Web's house which was consumed by fire recently, but the house of his wife's parents. Web and his wife were staying there and managed to save most of their belongings. So we transfer our sympathies to his parents-in-law. Web wonders how the news got around, as he didn't know that any of his acquaintances knew about it. Well, Walter Winchell has nothing on us. I don't know; I only write what I hear. The name of the company Web is working for is the Paragon Revolute Corporation in Rochester, N. Y. The name explains the work done by this company, and Web is a designing engineer. From Web we hear that 'the racket finally caught up with George Trimble,' and he is now working for the engineering department of the SKF ball and roller bearing company in Philadelphia. Now that you are located, how about a letter giving some more news, George? — Dick Koegler came through with more news that he is still working in San Diego for Consolidated Aircraft with Bob Lutz. Dick also wonders how the last news of him got around. He has bought a new car, which seems to indicate that the West Coast is a good place to work. Dick sees George Ray frequently, but we have no direct news of George. How about it George? Several of Dick's pals felt gay and answered about a hundred adds in his name. And he has been flooded with mail, offering tombstones, fake teeth, cough medicine, and even ads from nursing schools. Sounds like a good trick. Dick is hoping to get back East for a visit soon.

"John Myers was in East Hartford, Conn., on some work for his thesis. He has been making a lot of contacts trying to find out how fast airplanes depreciate. He feels that five years of Tech is about all he wants. Cookie is still at school,

working both for himself and the school. He has recently been helping Professor Koppen '24 on the wind-tunnel oscillator. Dave Gildea is still at school, also, in the five-year course, as is John Drew. Dick Murrow — also at school — has left the ranks of the bachelors. Good luck, Dick. Word comes that Jack Chapter and Ed Dashefsky, who were pals through their Tech course, have joined forces again down at Sikorsky in Bridgeport, Conn. Tech men do get around! Ed left Seversky and Jack came from Curtiss. Or was it vice versa? Jim Breathitt is down at the Army air school in Texas, gaining more flying experience. He finished his graduate course up here first. And Charlie Endweiss is with the Naval air school, which should make Breathitt and him friendly enemies. Charlie feels he is working as hard as he did here at school, but it sounds more interesting. He has about 50 hours in the air and they are giving him even more class work and ground school work.

"Yank Spaulding is now in the flight test division of Pan American. He has been flying in the Sikorsky *Clippers* and taking data and working up the calculations. He sounds mighty pleased with his work. Dan Pearson is also with Pan American, working up in the flight division, and we hear he has been flying some of the ships. Hen Runkel was in Boston a few week-ends ago; he flew in on the American Airlines and looked up all his old pals at school. A good idea for any of the rest of you who are reasonably close. I've been back myself, and the Institute looks pretty good from the outside. But the biggest news seems to be from Jack Hamilton. Jack is now the proud father of a bouncing baby girl, named Nancy Irwin. As far as we know he is the first of our group, and we send congratulations." Leave it to Bus to put the most important news at the end!

Course XVII. Before telling the bit of news I have about this group, I want to correct the address given for Dick Hickman two months ago. I must have been sound asleep by the time I had worked down to XVII because I gave his old address as the new one. The correct facts are that Dick is living with five other fellows in a six-room cottage at 2513 Park View Avenue, Knoxville, Tenn. He says for the Chi Epsilon News Letter that they have a housekeeper who specializes in the fine art of cooking. The Chickamauga Dam spillway preliminary design, on which Dick was working, has been accepted as recommended and the final drawings are now being made. Both the Chickamauga and Guntersville spillways are very similar to that being built at Pickwick Landing for the TVA. — Charlie Betts is working for the specifi-

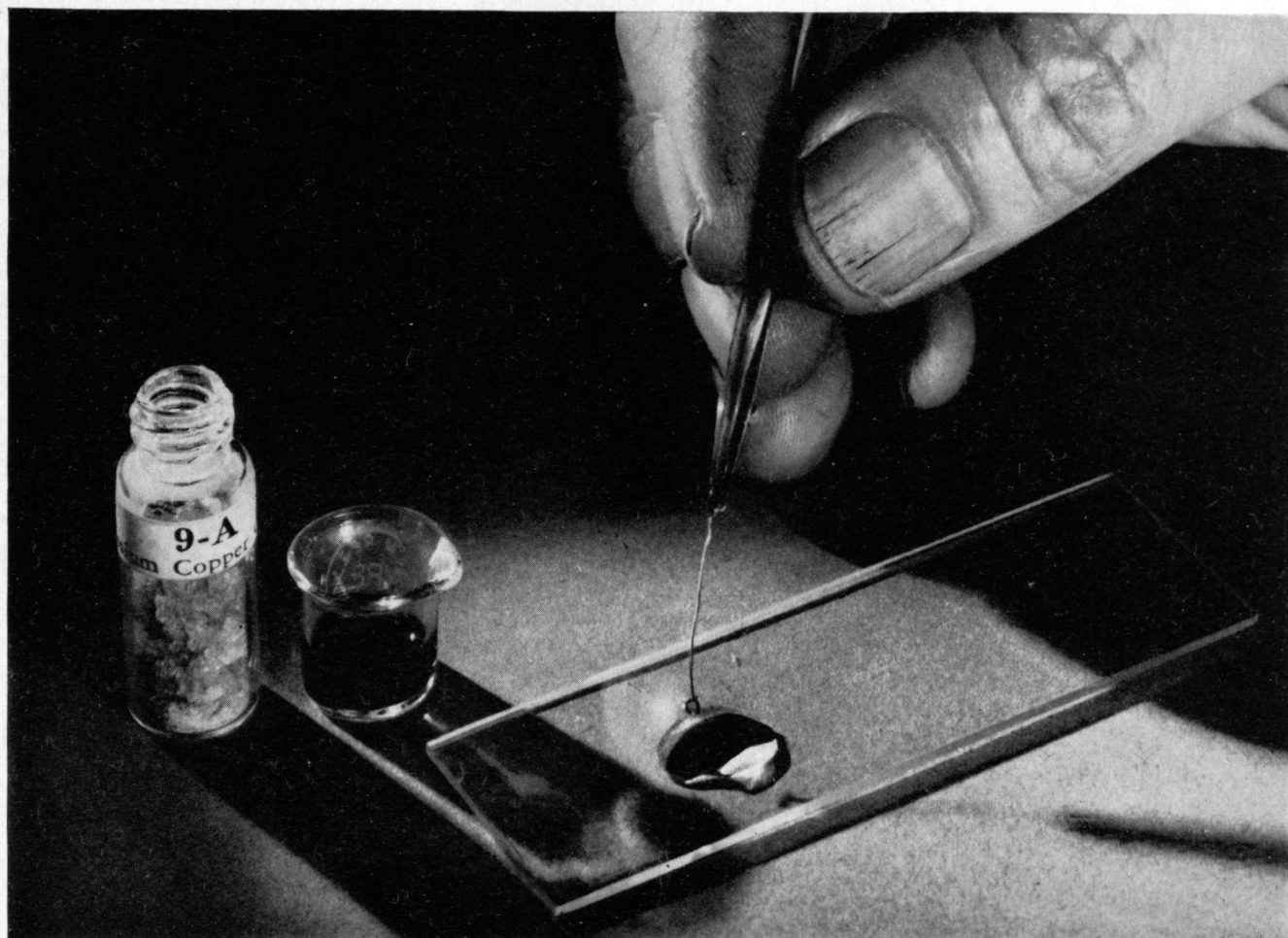
cation department at the Johns-Manville factory in Manville, N. J. He is engaged at present "in writing up product specifications — a far cry from construction engineering, to be sure, but a position of great scope for experience and training for industrial engineering and construction."

— Bob Sawyer expects to get his master's degree from M.I.T. in June, but right now is having a great time with his thesis on plasticity applied to rotating machinery!

Course XVIII. Eli Grossman is another of those fellows who have been kept pretty busy lately, but has at last found time to write: "My hours in the past at the United States Life Insurance Company have been very long, and I never got home until late at night, and even worked some Sundays . . . However, now my hours are much shorter, and I am a permanent member of the actuarial staff. My company, which in the past has been one of the most conservative in the country, has recently started a great international expansion. We write insurance all over the world. Most of the business done now is in the Far East, Tropics, and Semitropics. My duties have been so numerous that I am writing the most interesting ones. I am working on mortality statistics of the Orient. I also have had a chance to make use of the theoretical interpolation and finite differences that I studied. I enjoyed assisting in the installation of a new system for calculating reserves. — Al Le Shane wrote that he has a job with the Employers Liability Insurance Company. He is to spend one year studying the statistical methods employed by the company. Six weeks must be spent in each of ten different statistical departments. The company expects to start a new actuarial department of which he is to be an integral part (mathematicians must use terms of their trade). This company is one of the largest casualty insurance companies in the country. I feel Al is to be congratulated for being associated with them. — I see Ken Arnold at lunch time quite often, since the S.M. News Company of New York, where he is employed as a statistician, is near my firm. He is taking several courses at Columbia evening school, studying economics and business. He appears to be one of those budding mathematical economists. — Incidentally, I am happy to report that of the eight Course XVIII men receiving S.B. degrees in 1936, six have jobs of a mathematical nature, and the other two are working for doctor's degrees in mathematics."

On this cheerful note, then, we close our column for this month. In parting, may I remind the members of the Class that we local boys are looking forward to seeing them on Alumni Day, June 7. — ANTON E. HITTLE, *General Secretary*, Graduate House, M.I.T., Cambridge, Mass.

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